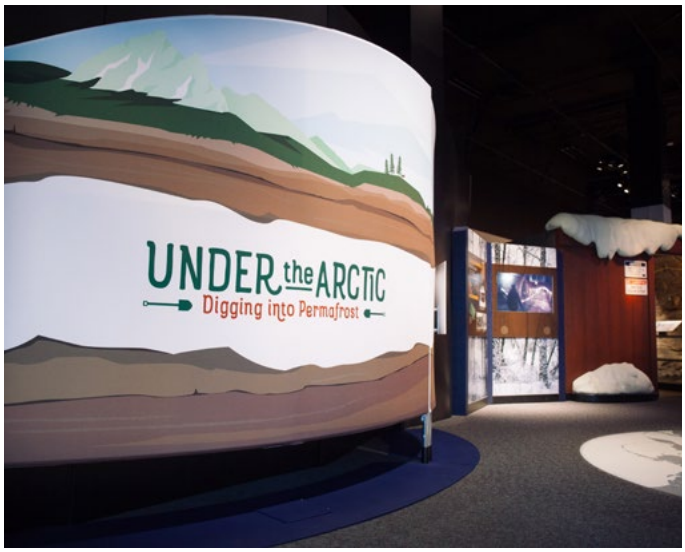
Exhibit Description

Under the Arctic: Digging Into Permafrost is an immersive, interactive exhibition that opens a dialog about one of the most important issues of our time: climate change. The key experience of the exhibit is a replica of the Western Hemisphere's only permafrost research tunnel located in Alaska, where visitors can take in the sights and smells of an underground world that is usually hidden from view. Frozen grasses, ancient ice formations, and Ice Age fossils take visitors on a journey that provides clues to earth's past and future climates. In the Field Lab visitors join the research team to learn from hands-on experiments, interactive models, and exciting games that explore the causes and consequences of climate change for all of us.

The exhibition strives to educate visitors about permafrost's unfamiliar properties, especially the impact it has on our changing climate. "It's an opportunity to make climate change tangible," said Exhibit Developer Allyson Woodard. "You get to see it, you get to touch it, you even get to smell it in the exhibit."



Under the Arctic is specially designed for students ages 9 - 14, school groups, and families. It was developed by the Oregon Museum of Science and Industry (OMSI) in collaboration with the Geophysical Institute at the University of Alaska Fairbanks and an Alaska Native advisory group. The exhibit is presented in English and by Alaska Native voices in text, images, and videos.

Under the Arctic | Quick Facts

Requirements
2,000 ft^2 gallery space
9' minimum ceiling height
3-5 days for installation and take-down

Components
Permafrost tunnel replica, Ice Age fossils, hands-on interactives, full-body challenges, computer-based activities, graphic panels, maps, text, and videos.

Shipping
Shipped in (1) 53' trailer
(12) carts total, all uniform and of comparable size
Cart storage: 400 ft^2

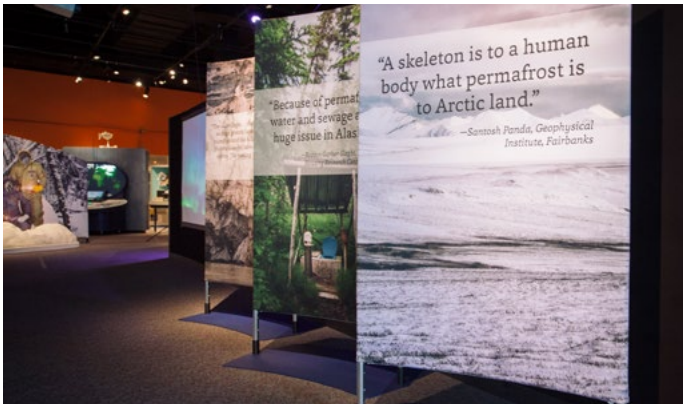
Supplemental Materials
Instruction Manual; Marketing Kit; Educator's Guide, and option to order a chunk of ancient ice from the permafrost tunnel in Alaska to enhance your programming (while supplies last)!

Contact OMSI's Traveling Exhibits Services at:
503-797-4628 or travelingexhibits@omsi.edu.

Under the Arctic: Digging into Permafrost was produced and is toured by the Oregon Museum of Science and Industry. The exhibit was developed in collaboration with the Geophysical Institute at the University of Alaska Fairbanks and made possible by a National Science Foundation (NSF) grant.

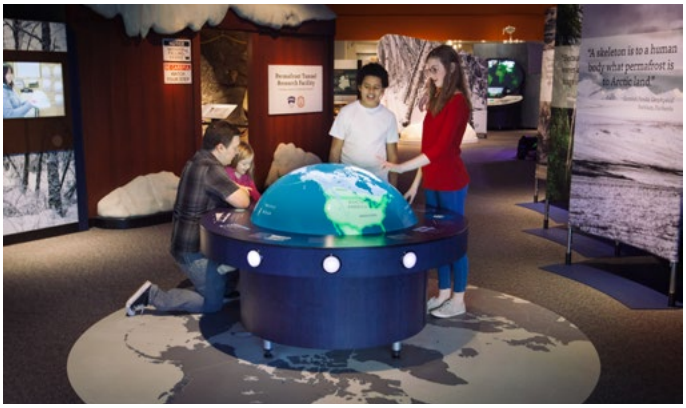
Thematic Area | Get Oriented to the Arctic

Title & Credit Panel - Introduces the exhibition, as well as its sponsors and collaborators. (See previous page for photo.)

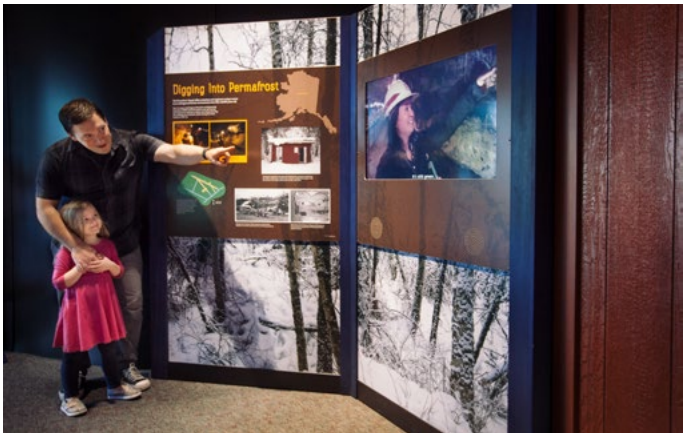


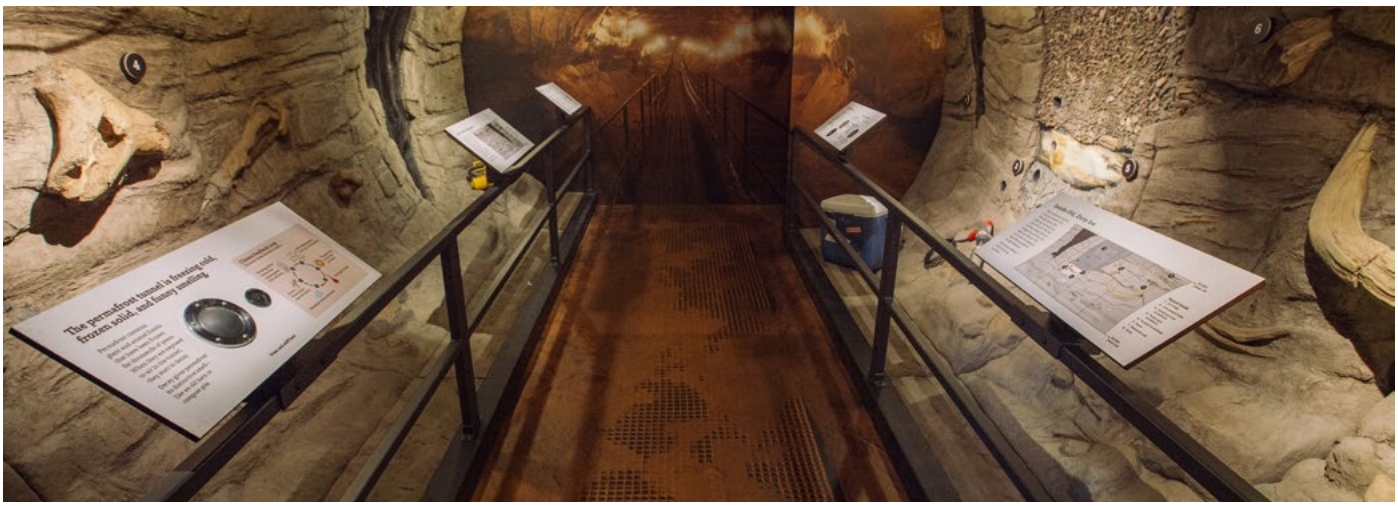
Entry Graphics - Three (3) tension fabric environmental structures feature dramatic photographs from the Arctic and thought-provoking quotes from researchers and Alaska Natives. On the reverse side, the panels are printed with a snowy forest scene, making them versatile and appealing from every angle.

Arctic Globe - Visitors are drawn into the exhibition by a glowing globe. With the push of a button, visitors discover how locations around the world are impacted by thawing permafrost. Visitors learn about the vast scale of permafrost and the surprising amount of earth's surface that is frozen year round. A round vinyl floor mat creates an inviting space around the Arctic Globe. Intended for older elementary students, middle grades, and adults.



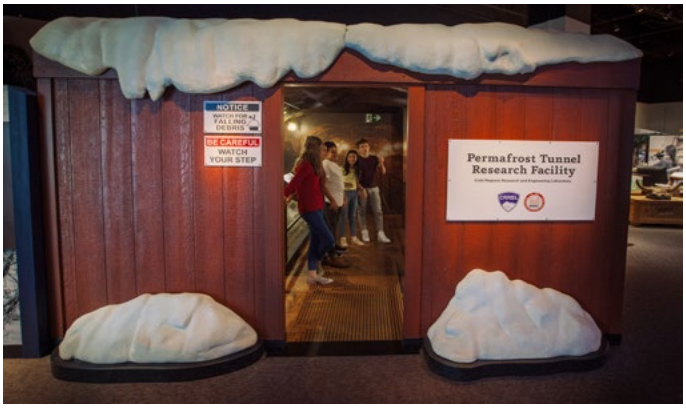
Tunnel Welcome - At the tunnel entrance, a large graphic panel with historic photographs tells the story of the Permafrost Research Tunnel in Alaska—why and how it was excavated in the 1960s. Next to the tunnel history, a permafrost researcher welcomes visitors and tours them through the tunnel in Alaska. This captioned video tour provides visitors with an orientation to the replica tunnel. Intended for all ages.



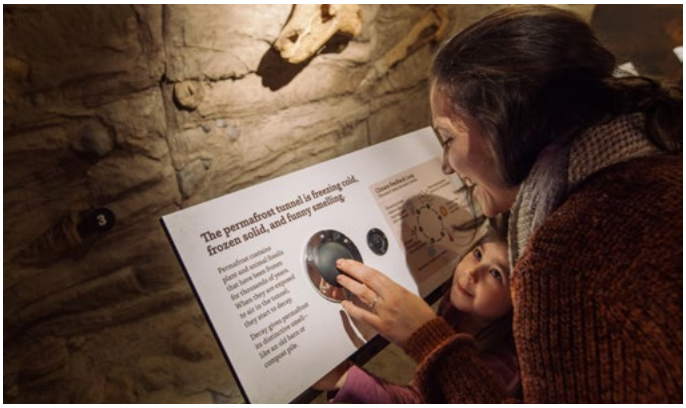


Thematic Area | Immerse Yourself in the Tunnel

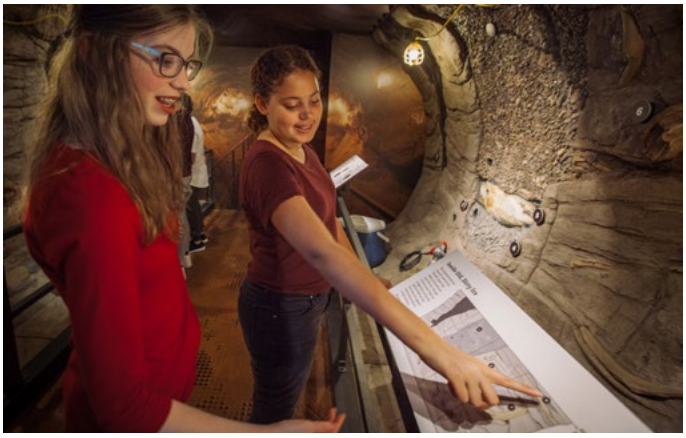
Permafrost Research Tunnel - The key experience of the exhibition is a replica of the original Alaskan research tunnel, where visitors can discover for themselves all that's hidden inside permafrost! In order to create a truly immersive environment, OMSI employed an expert environment sculptor to construct the lifelike replica. Its nine (9) sections are easy to put together and measure 13' x 18' x 8.5' when fully assembled. The tunnel includes vinyl flooring and hand railings. Intended for all ages.



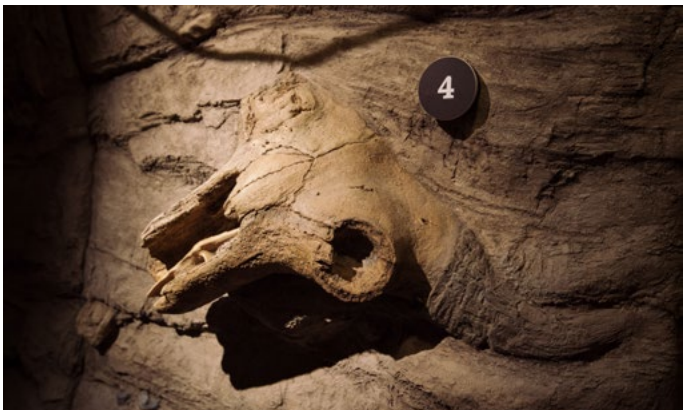
Organic Materials Smell Station - The interactive smell station describes how and why organic material is decomposing inside the tunnel. Visitors press a rubber air bladder for a whiff of realistic funky tunnel scent. Visitors observe organic material emerging from frozen tunnel walls and learn it has been preserved in permafrost for thousands of years. Intended for all ages.



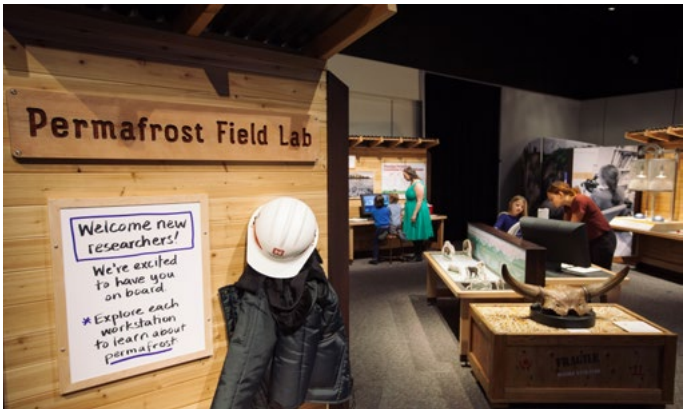
Tunnel Ice Structures - A dark, mysterious ice wedge and complex sink hole are displayed on opposite walls of the tunnel. A text panel beneath the ice wedge explains how it grew over thousands of years. On the other wall, each step in the sink hole's formation is described and each ice layer is numbered for reference. Visitors learn that frozen ground is full of ice structures that are ancient, complex, and beautiful. Intended for middle grades and adults.



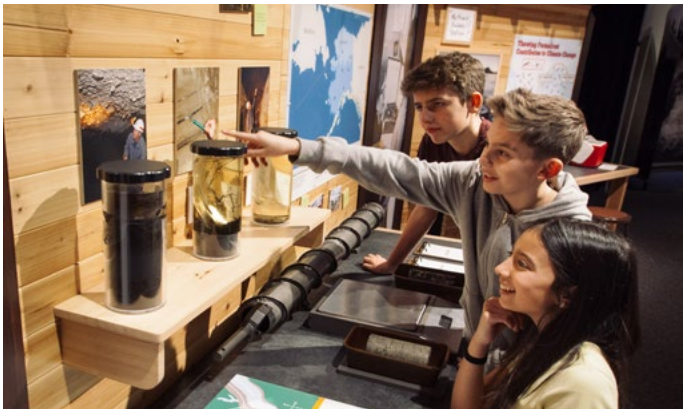
Tunnel Fossils - Distributed throughout the sculpted tunnel walls are realistic replicas of fossil bones and plants. Many fossils are labeled with numbers and identified on text panels—others are unlabeled to allow discovery by observant visitors! Hand railing position groups so everyone has a good view.



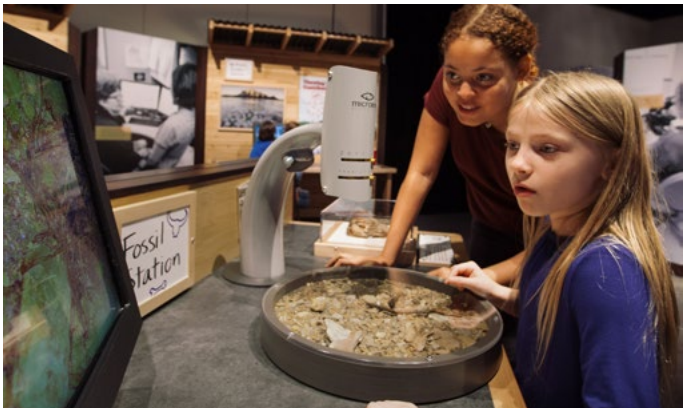
Permafrost Field Lab Welcome Wall - New researchers are welcomed to the Field Lab by a friendly "hand-written" greeting. This modular component can be placed near the lab entrance to set the scene with its permanently attached cold weather jacket, hard hat, and boots. The wood paneling and corrugated roof reflect the rustic style of the field lab. Intended for all ages.



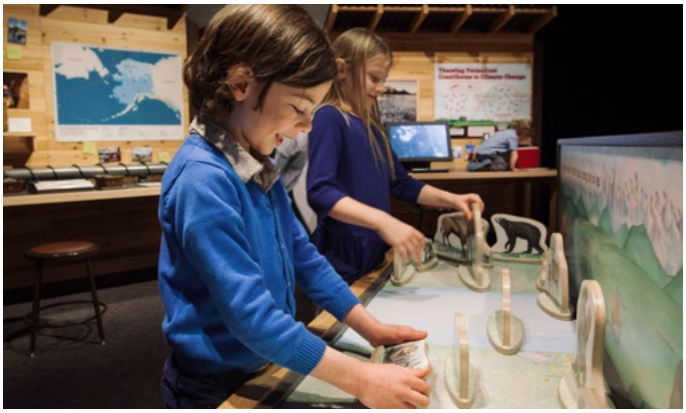
Core Sample Station - At this interactive station, visitors compare the weight and visual appearance of different simulated permafrost core samples to predict where to build a new structure. They are also invited to explore tools, maps, and materials used in permafrost research. This station includes photos, "hand-written" notes, maps, a scale, and a real auger. Intended for middle grades, and adults.



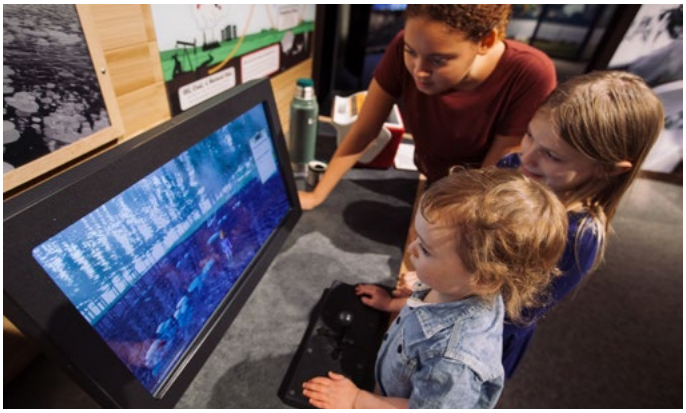
Fossil Exploration Station - Visitors explore a tray full of real rocks, silt, and fossil fragments collected from the tunnel in Alaska. Using a microEye magnifier and field guide of notes and sketches, visitors examine and identify a variety of plant and animal fossils. Each specimen can be magnified and displayed on the monitor by rotating the tray. An ancient mammoth molar is encased in a vitrine for guests to see up close! Visitors discover that the Arctic was rick with plant and animal life during the Ice Age. Intended for all ages.



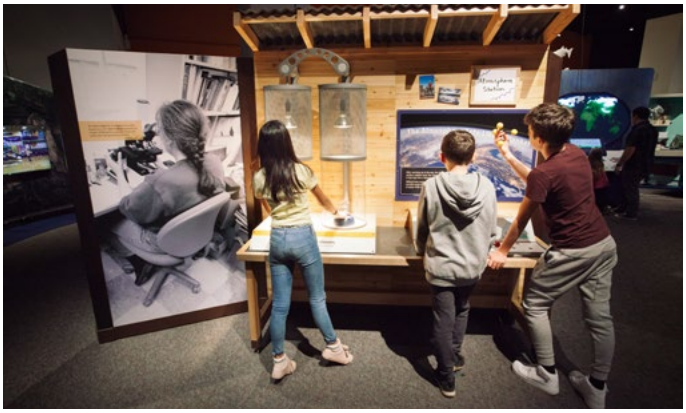
Ice Age Landscape Play Station - Young children are invited to recreate an Alaskan scene from the Ice Age. This low, kid-height table features an illustrated landscape populated with Ice Age plants and animals. Plants and animals are replicated as 3D wooden models to encourage play and imagination. Kids are invited to manipulate the models within the scene and match them with the labeled illustrations. A bin is nestled to the side of the table for storage of the models. Intended for preschool and elementary students.



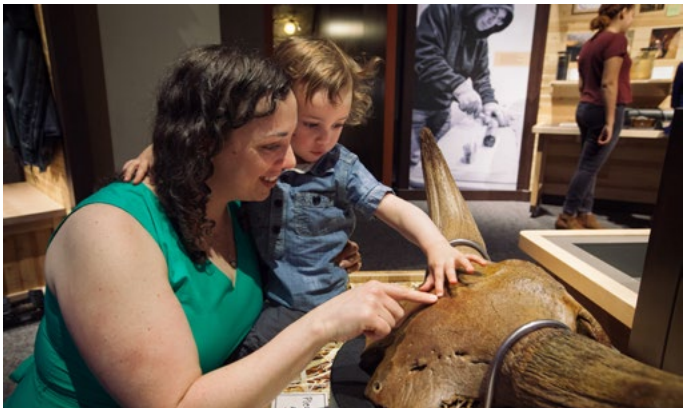
Methane Bubble Researcher Station - A playful video game invites visitors to take on the role of an ice bubble researcher! First, visitors choose a researcher avatar and count as many ice bubbles as they can in a race against the clock. After the game, a video of real ice bubble researchers explains how methane is trapped in ice and shows escaping gas being set on fire. A time-lapse video of rotting food inside a small ice chest serves as a metaphor for what happens to organic material inside permafrost as it thaws. Intended for all ages.

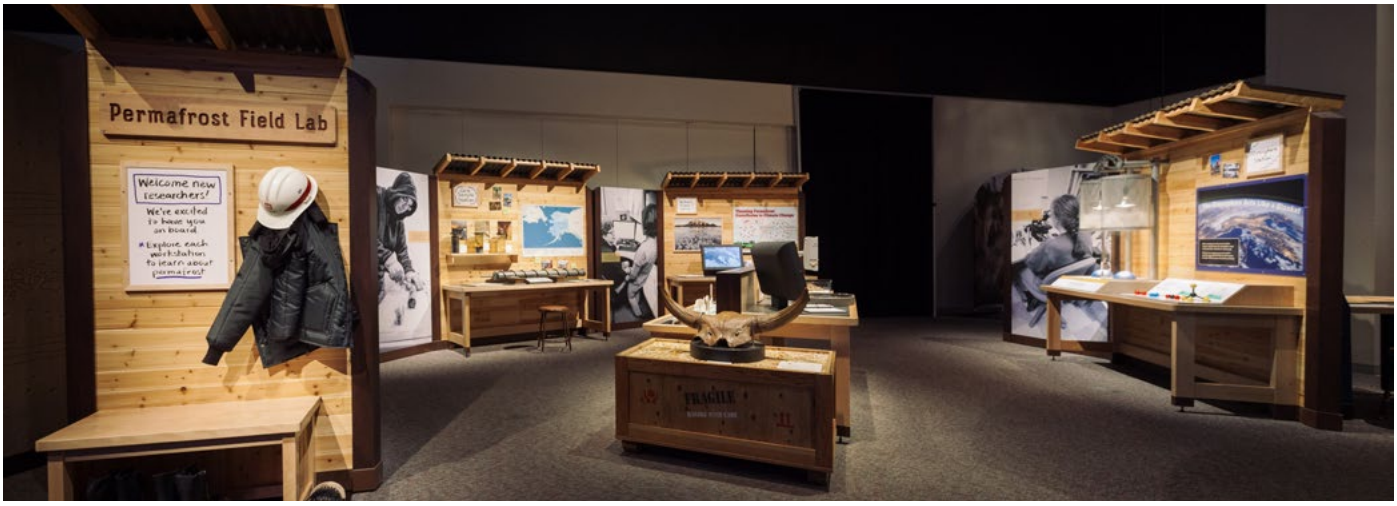


Atmosphere Station - Visitors are invited to feel the temperature and compare models of the earth with and without an atmosphere. The models demonstrate how the atmosphere acts as a heat-trapping blanket that warms the planet. Touchable models of gas molecules demonstrate the structures of the different gas- es present in our atmosphere and how they trap or release heat. Intended for older elementary, middle grades, and adults.

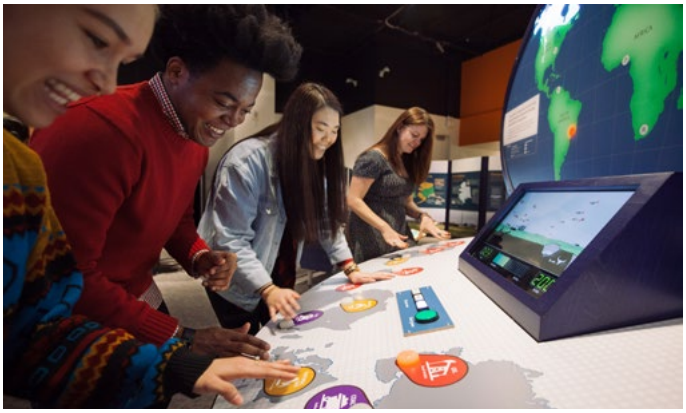


Bison Skull Fossil - Visitors are invited to touch and examine a real Ice Age bison skull discovered in Alaska's permafrost! This experience, sparks a sense of wonder by seeing the fascinating details of a large, authentic fossil and by interacting with an artifact that is both real and rare. Intended for all ages.

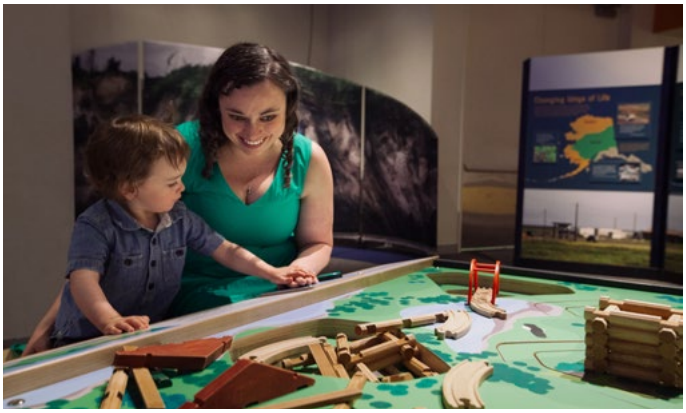




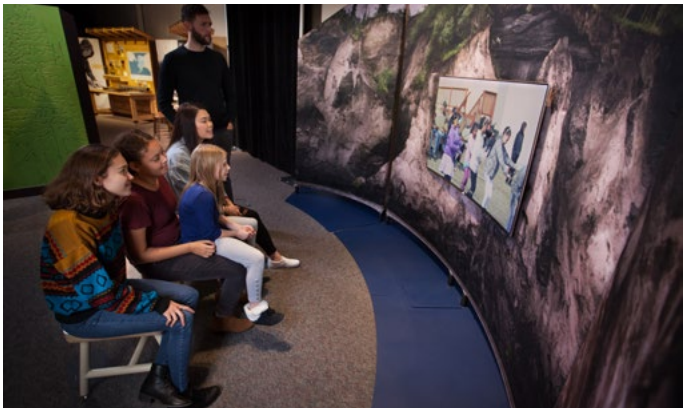
Fossil Fuel Challenge - Work together to keep carbon in the ground! At this full-body, collaborative challenge, visitors play whack-a-mole with global fossil fuel reserves. Visitors select a difficulty level on the playing surface (easy, medium, hard), and press “Start.” As locations of fossil fuel reserves begin to light up around the map, players whack them with their hands to gain points before the lights go out. This exciting game wows visitors with lights, sounds, and fast-paced play. Intended for older elementary students, middle grades, and adults.



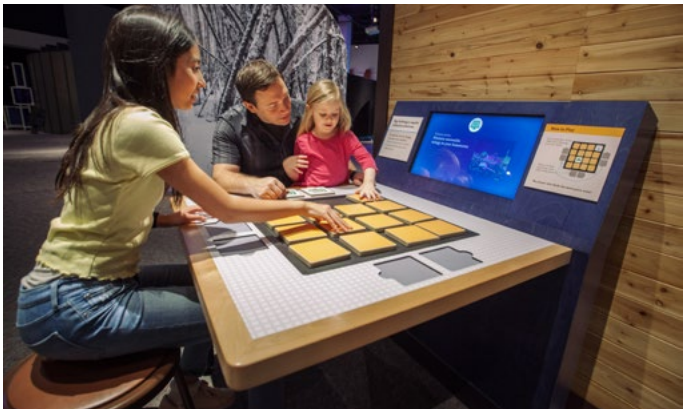
Build An Alaskan Village - Building structures and repairing roads on top of permafrost is a unique engineering challenge. With the push of a button, mechanical sink holes rise and fall, inviting visitors to build on and around them, and imagine the challenges of living on such dynamic geology! Players feel a sense of wonder at the Alaskan landscape, and a new respect for the ingenuity it takes to live on permafrost. Building materials and benches included. Intended for preschool and elementary students.



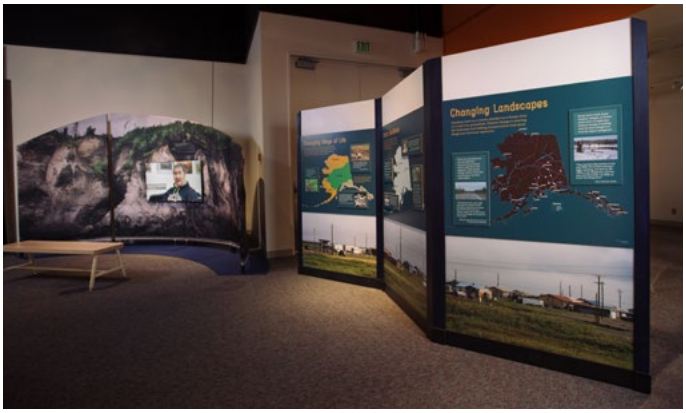
Northern Stories Theater - This mini theater invites visitors to watch a short 10-minute film of stories from Alaska Natives about the impact of the warming climate and thawing permafrost on their lives and communities. Viewers gain a glimpse into Alaska Native culture and the resilience of people, young and old, who are at the forefront of our changing climate. Intended for all ages.



Take Action on Climate Change - A new take on the classic card game! In this family-favorite challenge, visitors are invited to test their memories by taking turns flipping over and matching cards. Once they’ve got a match, the cards are placed on a sensor that triggers the video screen to show creative ways to take com- munity action on climate change. Intended for all elementary students, middle grades, and adults.



Stories of Change - In this large three-paneled display, visitors learn more about how Alaska Native communities are responding to their changing landscapes and ways of life. It features maps, text, quotes, and photos. Intended for middle grades and adults.



Permafrost Researcher Photo Op - Visitors pose for a photo with family and friends as permafrost researchers! The large freestanding photo op features face cut-outs at two heights, plus a small step to accommodate all ages and sizes. The tension fabric environmental structure completes the photos with a realistic snowy backdrop. After visitors leave the exhibit, their photo souvenir is a reminder of all they learned and felt about the Arctic landscape and climate change. Intended for all ages.