



ONE SKY,
MANY WORLDS
INDIGENOUS VOICES IN ASTRONOMY

“We were Star People.
We are Star People.
We will be Star People.”

Te Kahuratai Painting, Wilfred Buck,
and many Indigenous voices

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▲ Algonquin canoe. Canadian Museum of History, III-L-120 a-c, IMG2014-0098-0044-Dm

◀ *The Majesty of the Minnesota Night Sky—Northern Lights along the Sawbill Trail, Superior National Forest, Minnesota, USA.* Travis Novitsy

(Front and back cover) Ojibwe constellations (Detail) from *Ojibwe Giizhig Anung Masinaaigan—Ojibwe Sky Star Map*, as seen in Stellarium. By A. Lee, W. Wilson, C. Gawboy, in collaboration with Georg Zotti



◀ Wilfred Buck at the 2019 edition of *Tipis and Telescopes*, near East Selkirk, Manitoba, Canada. Christie Taylor

INTRODUCTION

An Innovative Approach to a Popular Subject

One Sky, Many Worlds is a collaborative exhibition led by Indigenous Knowledge Keepers, both young and old, from around the world. The exhibition explores the enduring relationship and connection that Indigenous people have with the night sky and how it has provided—and continues to provide—a practical, cultural, and spiritual guidebook for life.

“Everybody has their stories about the sky, because everybody lives under the sky. Initially, that’s how we lived, by the sky and the objects in the sky.”

Wilfred Buck, Manitoba First Nations Education Resource Centre



▲ *Ishpiming Maang—Loon in the Sky*. Painting by William Wilson. Collection of Artist

◀ *Atima Atchakosuk—The Dog Stars*. Painting by Edwin Bighetty. Manitoba First Nations Education Resource Centre

A UNIQUE DEVELOPMENT TEAM

In their first ever partnership, Ingenium: Canada’s Museums of Science and Innovation, Nomad Exhibitions, and a diverse team of Indigenous Knowledge Keepers, scholars, and educators have come together to bring you the ground-breaking and thought-provoking travelling exhibition, *One Sky, Many Worlds: Indigenous Voices in Astronomy*.

In this collective effort, the Indigenous partners bring the voice of their communities together to create a powerful experience that reignites our curiosity for the night sky.



◀ Annette S. Lee presenting at the *Skywatchers—Bringing Together Cultural and Scientific Knowledge of the Stars* Workshop in 2019 at ᑭᓄᓇᕐᕐᓄᓇᑦᕐᓄᓇᑦᕐᓄᓇᑦ House of Learning, Peninsula College Longhouse, Port Angeles, Washington, USA. The Longhouse features *Ceremonial Screen* by Jimmy Price, Port Gamble S'Klallam. Photo by Daniella Scalice, NASA

A UNIQUE DEVELOPMENT TEAM

Ingenium

Ingenium celebrates the innovative spirit of Canadians by telling the stories of those who dared to think differently. Inspired by the power of ingenuity, Ingenium encompasses three national institutions: the Canada Agriculture and Food Museum; the Canada Aviation and Space Museum; and the Canada Science and Technology Museum. These three museums are places where the past meets the future, with spaces where visitors can learn and explore, play and discover. The newly opened Ingenium Centre protects priceless Canadian heritage artifacts for the benefit of many generations to come. Beyond the physical walls of its museums, Ingenium's engaging digital content, outreach programs, and travelling exhibitions serve to educate, entertain, and engage audiences across Canada and around the world.

Nomad Exhibitions

Nomad Exhibitions specialises in the design, production and management of engaging and experiential international touring exhibitions

for museums and cultural venues worldwide. Through their diverse programmes, world-class featured collections, and innovation in exhibition design and interpretation, the award-winning Nomad team aspire to encourage meaningful and lasting cultural interactions between international communities and between museums and their visitors. Nomad is motivated by the aim to contribute positively towards the improvement of the exhibition production experience for cultural venues, and to facilitate worldwide access to outstanding collections through creative design, curatorial excellence, exceptional partnerships, and environmental responsibility.

Indigenous Voice

Critical to the success of this exhibit is the partnership and the leadership of the Indigenous partners as curators. Indigenous Co-Curators, Annette S. Lee and Wilfred Buck, are instrumental in bringing together contributions from international partners from throughout the world.



A GLOBAL COLLABORATION BASED ON LOCAL PARTNERSHIPS

Around the world, Indigenous communities are reclaiming and revitalizing their traditional knowledge, including their star knowledge.

In *One Sky, Many Worlds*, pre-eminent Indigenous Knowledge Keepers, scholars, and educators come together for a global exchange about Indigenous ways of knowing centered on the night sky. This fits into a timely and important larger discussion about traditional Indigenous knowledge and how it is helping to cultivate a more open, inclusive understanding of science.

Annette S. Lee
Co-Curator and Lead Indigenous Design Advisor, Ojibwe and Lakota/Dakota

Wilfred Buck
Co-Curator and Spiritual Advisor, Inineu

David Pantalony
Co-Curator, Ingenium

Carolyn Holland
Visitor Experience Developer, Ingenium

Carola Knockwood,
Content Consultant, Mi'kmaw

Anita Tenasco
Content Consultant, Algonquin

Jarita Holbrook
Content Consultant, Africa

Te Kahuratai Painting
Content Consultant, Māori

Duane Hamacher,
Content Consultant, Aboriginal Australia

Gerardo Aldana
Content Consultant, Maya

Glenn Langhorst
Content Consultant, Maya

Milagros Varguez
Content Consultant, Maya

Ka'iu Kimura
Content Consultant, Hawaiian

Kālepa Baybayan
Content Consultant, Hawaiian

Nancy C. Maryboy, PhD
Content Consultant, Diné

David H. Begay, PhD
Content Consultant, Diné

Chris Cannon
Content Consultant, Dene and Gwich'in



▲ Carved prow of Māori waka. Smithsonian Institution, National Museum of Natural History, Department of Anthropology E#NHB2013-02260

◀ E hi ana Te Mataunui-a-Maui i Te Ika-a-Maui (Maui's Great Fishhook pulling Maui's fish—The Milky Way) as seen in Stellarium. Illustrated by Ben Thomason, Ngati Raukawa—Māori, Mana Design, in collaboration with Axel Mellinger



Participants from the NASA and the Navajo Nation summer camp pictured at Spider Rock, Arizona, USA. Photo by Daniella Scalice, NASA

A PARTNERSHIP BEYOND THE EXHIBITION

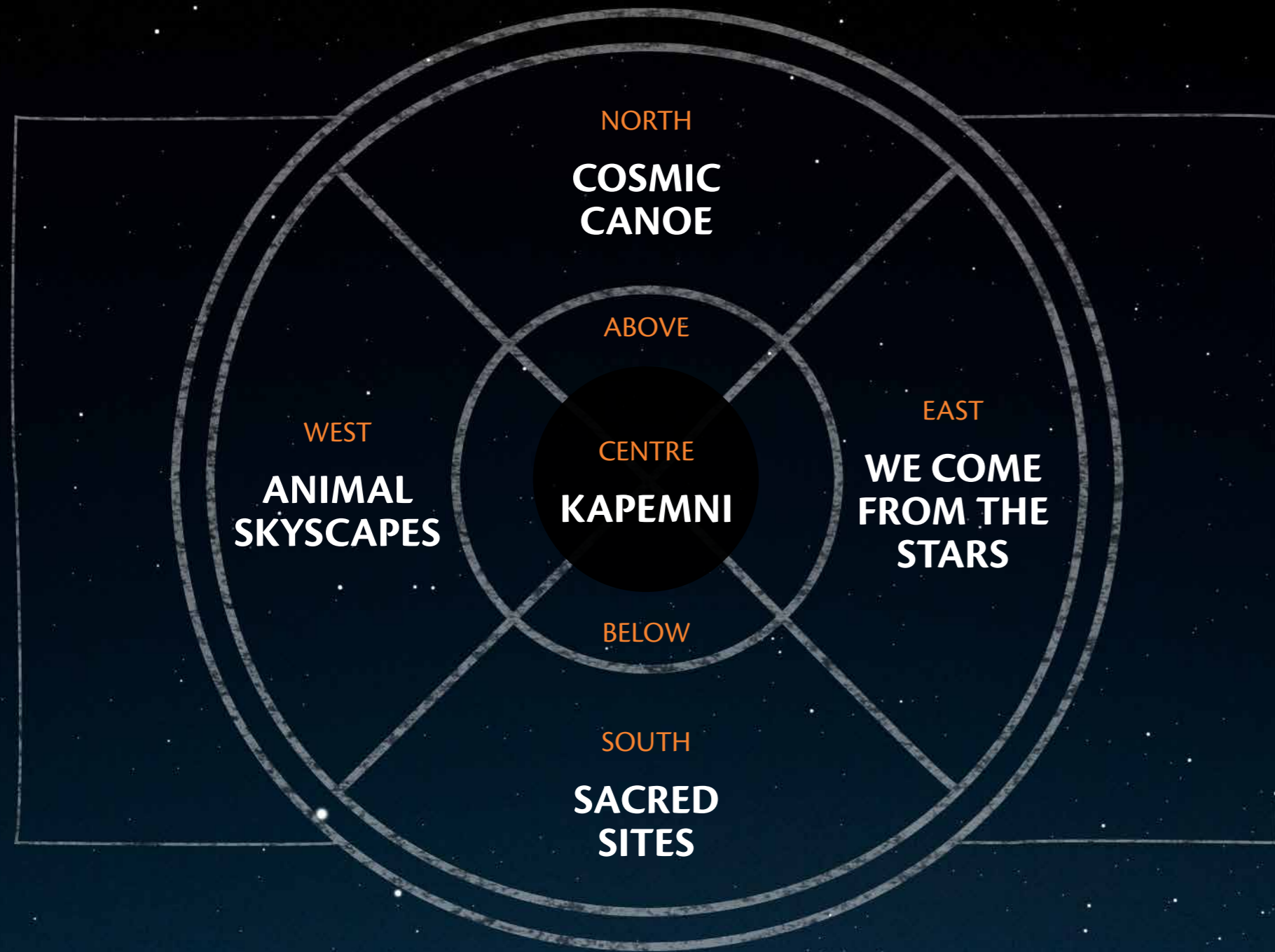
Programming and Training

One Sky, Many Worlds is meant to be an innovative platform for exchange and conversation. Indigenous content partners will visit the exhibition at its host venues, acting as knowledge ambassadors in order to offer workshops and training to help guide respectful sharing of the knowledge. Where possible, knowledge ambassadors will collaborate with local Indigenous communities to help support local community efforts in Indigenous Star Knowledge revitalization work. These efforts will build on previous collaborations, which resulted in the creation of star maps and other educational tools and resources for use in the community.

Existing resources can be made available to host venues in order to offer supplementary programming for visitors. This would be included in the knowledge ambassadors' workshops and training. Terms of use are to be confirmed and agreed upon by partners and host venues.

Long-Term Projects

Ingenium and its partners on *One Sky, Many Worlds* are committed to long-term investments in the revitalization of Indigenous Star Knowledge locally and around the world. Ongoing projects and initiatives include relationship building within and between communities, strengthening of research networks, the development of educational resources for Indigenous communities, and fundraising for these projects. Through a recently awarded federal research grant, Ingenium is planning an *International Symposium on Indigenous Star Knowledge* in partnership with the Institute of Indigenous Research and Studies at the University of Ottawa. The symposium, a sharing of knowledge between traditional Knowledge Keepers, scholars, and educators, will be held in 2021 on Traditional Algonquin Anishinàbe Territory in Ottawa, Ontario, Canada.



AN EXHIBITION ROOTED IN INDIGENOUS DESIGN

The unique layout of this exhibit was inspired by the concept of the Seven Sacred Directions as rooted in many Indigenous cultures. This includes the four cardinal directions—north-east-south-west—along with the above, below, and within (or center). These seven directions anchor us in everyday life and in ceremony. They are found externally in the sunrising and sunsetting, or landforms like a river or mountain system. They are found inside of us. When we take the time to orient ourselves with these seven directions, we calibrate our experience with the cosmos.

In this way, the viewer can become a participant in this exhibit inspired by ceremony ... a star medicine teaching and healing lodge.

Design statement and Indigenous design layout by Co-Curator and Lead Indigenous Design Advisor, Annette S. Lee (mixed-race Lakota)

Here, the viewer is invited to take in this exhibit not only with the curiosity of the mind and the physical beauty of Indigenous knowledge of the night sky, but also to acknowledge the heart and spirit of our human existence as seen in our connection to sky.



^A Hogan with Starquilt. Photo by Nancy C. Maryboy, PhD. Enhanced sky by Troy Cline



A UNIQUE COLLECTION

In an ambitious and unprecedented initiative, the *One Sky, Many Worlds* team is bringing together a diverse collection of Indigenous artifacts on loan from institutions worldwide as well as objects from living traditions borrowed or commissioned from Indigenous communities.

This first-ever coming together of artifacts, reproductions, and art represents an extension of the people and communities that have contributed to this project, and our commitment to authentic and collaborative engagement with the partner communities, Knowledge Keepers, and Elders. Community-based objects highlight the ongoing and dynamic relationship Indigenous people have with the sky and stars and rightly places the Indigenous voice at the forefront of the collection.

- (Top left, clockwise) Sacred rock art in Cave Hill, Australia depicting the story of Seven Sisters—the Pleiades constellation. Duane Hamacher
- Mi'kmaw Quillwork. Artist: Carola Knockwood
- Tepakoop Ahakoop (seven-pointed star blanket). Made by Trisha Dano, Anishinabe, Poplar River First Nation, Manitoba. Image by Wilfred Buck
- Anishinabe Algonquin Birch Bite Art. Artist: Joan Commanda Tenasco
- Miniature Cradleboard; Crow (Apsáalooke). E358416 Department of Anthropology, Smithsonian Institute
- Ngene shrine figure, Awgbu, Nigeria. MAA Z 14234.1-2. Reproduced by permission of University of Cambridge Museum of Archaeology & Anthropology
- Mi'kmaw Quillwork. Artist: Carola Knockwood
- Beaded Umbilical Cord Pouch on Sage. Made by and image by Annette S. Lee



(Top left, clockwise)
Fishing hook, bone, Maori, c.1800–1900. In the exhibition, *Māori, their Treasures have got a Soul*, in the Musée des Arts Premiers in Paris, 2011–2012

Gali Yalkgarrwiuy Gurruwiwi; Banumbirr 2014; earth pigment, bush string, tree gum, feathers on wood; 166.0 cm – 234.0 cm height; Image: Simon Anderson Photography, Melbourne; Courtesy: Vivien Anderson Gallery, Melbourne Australia

Tipi model; Kiowa, Black Star. E245010, Department of Anthropology, Smithsonian Institute

Drum; Inuvialuit, Kenneth Peeloolook, 1972. Canadian Museum of History, 2017.155.1, IMG2019-0154-0121-Dm

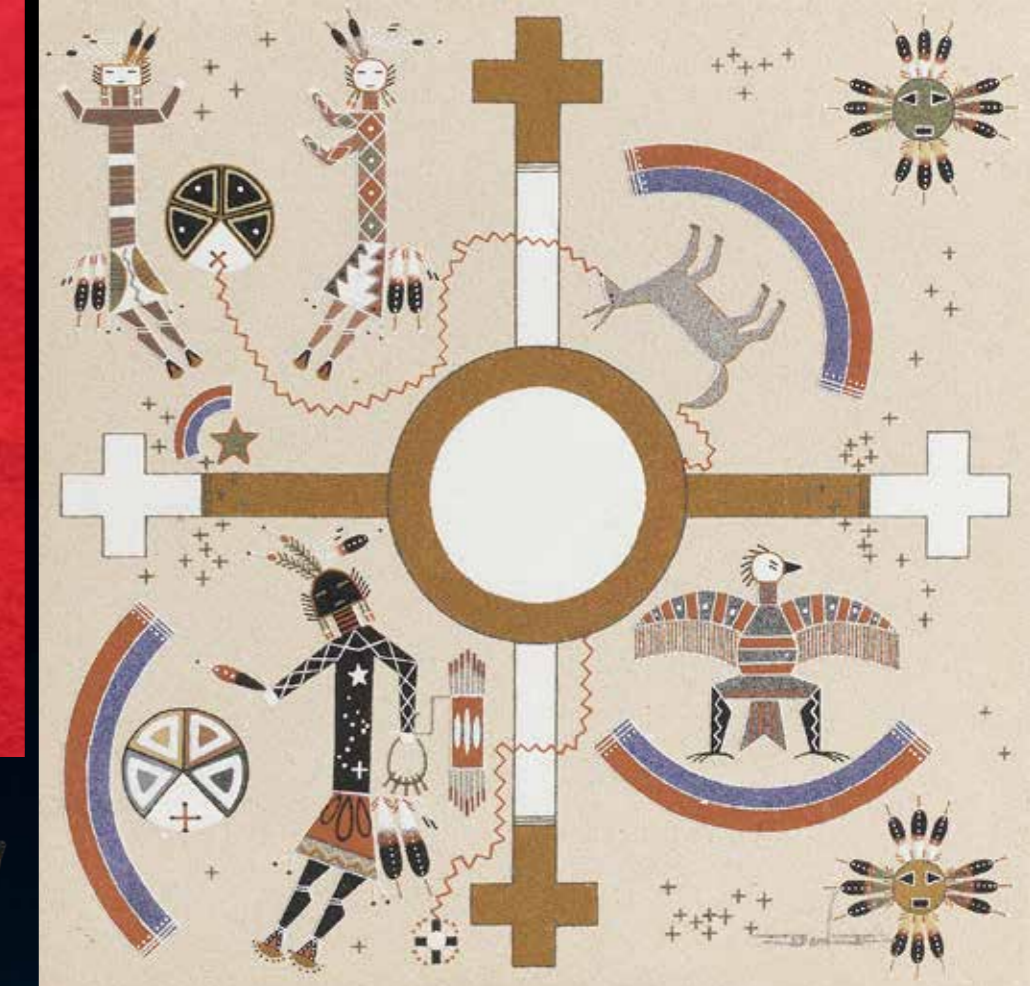
Cradle Covering; Sioux, Santee Dakota. E358017 Department of Anthropology, Smithsonian Institute

Vaso codice (codex-type glass); Maya. Catalogo de Reproducciones, Orfebreia – Ceramica, 2011, Instituto Nacional de Antropología e Historia; p. 100

Mi'kmaw Quillwork. Artist: Carola Knockwood

Plato Blom depicting a scene from the famous Mayan legend of the heroic twins Xbalanqué and Hunahpú. Catalogo de Reproducciones, Orfebreia – Ceramica, 2011, Instituto Nacional de Antropología e Historia; p. 115

Canoe model; Hawaiian. E3593-0 Department of Anthropology, Smithsonian Institute



(Top left, clockwise)
Beaded Pipe. Made by William Wilson. Image by Annette S. Lee

Sand Painting; Creation Story–Diné. National Museum of the American Indian, Smithsonian Institute (26/1537). Photo by NMAI Photo Services

Two Men Dancing to the Drum. Inuvialuit artist, Joe Nasogaluak. Location: Inuvik, Inuvialuit Regional Corporation

Tobacco Bag; Ute, Northern. E211005 Department of Anthropology, Smithsonian Institute

Canoe model; Tlingit, Sitka. E63557 Department of Anthropology, Smithsonian Institute





INTRODUCTION: ENTRY INTO SKY

Visitors to *One Sky, Many Worlds* will be invited to discover—or rediscover—that the night sky is a source of knowledge, curiosity, beauty, and the unknown. Traditionally, Indigenous people were and are still inextricably linked to the stars. These connections between sky and earth helped define self, family, community, and the seven generations. *One Sky, Many Worlds*, will bring these relationships to life.

As visitors enter *One Sky, Many Worlds*, the first steps are about acknowledgment. In the Indigenous framework, the four cardinal directions (north, south, east, west) plus the above, below, and center are the guideposts or doorways for many things from navigation, architecture, ceremony, to everyday intention. The first step is to pause and acknowledge direction. By doing this, a grounding to place can occur. We calibrate our internal compass to the external. We arrive.

Next, we acknowledge the land. In each place there is story and history. An important part of each place is the people that have lived there and had relationship with that place. We recognize the Indigenous people of that land and their story. Their ancestors had a relationship with that land, they cared for the land, their relatives are buried there, and their voices are still here. Now after taking a moment, the visitor is invited to enter the star medicine teaching lodge, *One Sky, Many Worlds*.

Curatorial statement from Annette S. Lee (mixed-race Lakota), Co-Curator and Lead Indigenous Design Advisor



EAST: WE COME FROM THE STARS

In keeping with Indigenous design and protocol, visitors begin their experience in the East, in the exhibition section called We come from the Stars. The idea that we all come from the stars is rooted in many aspects of Indigenous culture: in the language; the oral history; dreaming; ceremony; medicine; and common practice.

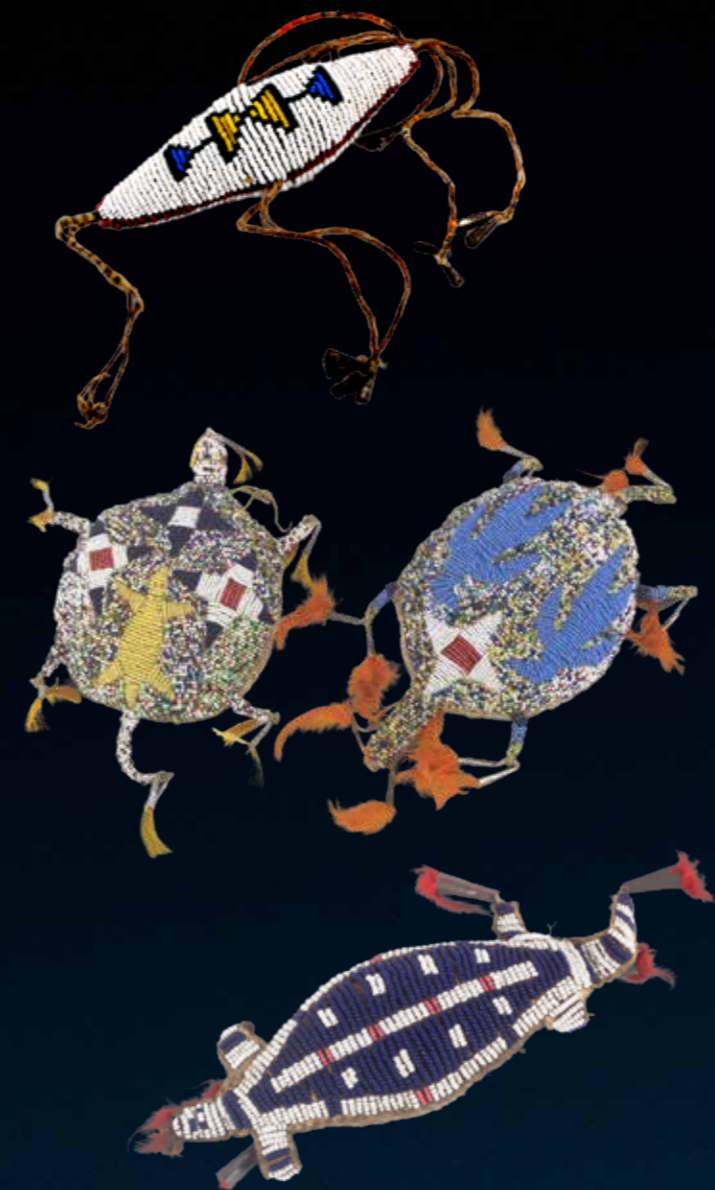
Visitors will explore how lifelines and doorways between the stars and the earth provide teachings and about birth, life, and death, and why these connections are central to the Indigenous cultural fabric. Artifacts presented in this section include Inineu star blankets, Lakota/Dakota beaded umbilical cord pouches, and a Yolngu Morning Star Pole.

In this section, visitors will hear origin stories from cultures throughout the world as well as Indigenous perspectives on contemporary research in astrobiology and astrophysics. Language figures prominently in this section—Indigenous Knowledge Keepers will share in their own words how language is deeply tied to these conceptions about origins, cosmology and vital connections between earth and sky.

◀ To *Wiy/Tuy Wiy—Blue Spirit Woman* (Detail).
Painting by Annette S. Lee. Collection of Artist

“Before we were here, we were in the Spirit-Star World. We are spiritual beings, briefly here trying to be human beings. After we leave here, we go back to the Star World. Stars are our oldest living relatives.”

Annette S. Lee, Astrophysicist, Artist, and Director of Native Skywatchers



A Beaded umbilical amulets. National Museum of the American Indian, Smithsonian Institute (19/4583), (1/3344). Photo by NMAI Photo Services

C Reflection nebula IC 349 near Merope in the Pleiades. NASA

EAST: WE COME FROM THE STARS

Sub-Themes

Origin Stories

From To Win/Tun Win (The Blue/Birth Spirit Woman) to Kokominakasis (Grandmother Spider) to the Big Bang, explaining and understanding the origins of life is common to cultures worldwide, both ancient and contemporary.

Lifelines

Knowing where we come from grounds us and this connection to the sky helps us, guides us, and brings us home.

Language

Star knowledge, like most Traditional Indigenous Knowledge is deeply embedded in language. Elders and Knowledge Keepers explain the inextricable link.

Object Highlights

- Lakota/Dakota Beaded Umbilical Cord Pouches
- Australian Aboriginal Morning Star Pole
- Ininew Seven-Pointed-Star Blanket



SOUTH: SACRED SITES

In the South, the section called Sacred Sites brings into focus an almost universal cultural need and desire to make connections between earth and sky. Magnificent monuments familiar to most visitors, like the Great Pyramids of Giza, Stonehenge, The Vatican, and the temples at Copán, will act as an introduction to the idea that people—past, present, and future—create conduits between the above and below.

Beyond architectural sites, this section will present to visitors a variety of beautiful and surprising natural sacred sites as well. From Paha Sapa (the Black Hills) on the Great Plains of North America to Uluru in Central Australia to Mauna Kea on the Island of Hawai'i, geological landforms around the world embedded with sacred meaning are recognized as links between sky and earth, and cared for by the Indigenous people through the generations.

Stunning imagery and artifacts, including Maya objects featuring astronomical and spiritual themes as well as sacred symbols, including the ceiba tree—one of the innumerable types of cosmic trees we find in Indigenous cultures, which similarly act as bridges between above and below—round out this section.

“From the ground, plants and trees emerge ...
And Ceiba grows. This sacred tree that connects
the underworld, the Earth and the sky.”

From: *Mayan Archeoastronomy: Observers of the Universe*, Direction: Milagros Varguez



- ▲ (Top left) The emu in the sky goes by many names across Aboriginal Australia, but its meaning is shared widely. Duane Hamacher
- ▲ (Top right) Ceiba, or “yaxché” in Yucatec Mayan, is the Mayan sacred tree, axis of the world that connected the three planes of the cosmos. *Mayan Archeoastronomy: Observers of the Universe* fulldome show
- ▲ (Bottom) Pte He Gi (Grey Horn Butte [Devils Tower]), WY, USA, 2012. Photo by Annette S. Lee
- ◀ Glyphs inscribed on limestone panel at Palenque. Glenn Langhorst

SOUTH: SACRED SITES

Sub-Themes

Built Sites

Cultures the world over and throughout time have built elaborate monuments for practical, political, and spiritual purposes, representing complex relations with the sky and to physically bring them closer to it, to create a conduit to it.

Geological Sites

A handful of places on Earth have embedded sacredness and power from nature without the need for architecture or artistry. These spiritual beacons denote a mirroring of earth and sky. They figure prominently in star knowledge across cultures and their care and protection are of great importance to the Indigenous people on whose traditional territories they appear.

Everywhere—the Cosmic Tree

With roots reaching downwards and branches reaching skywards, cosmic trees become naturally occurring, ubiquitous sacred sites where everyday people can participate in the earth-sky mirroring in everyday places.

Object Highlights

- Maya Vaso Codice (Reproduction)
- Maya Plato Blom (Reproduction)
- Australian Aboriginal Rock Art (Reproduction)



WEST: ANIMAL SKYSCAPES

Around the world, without exception, humans are dependent on animals for sustenance, ecological balance, labor, and companionship. Humans also rely on animals for more complex and intangible interactions. Animal behavior provides clues to changes in the land, which is important information when hunting, fishing, planting, harvesting, moving camp, and taking shelter. Throughout many cultures, animals can also be more than teachers of the practical—they also have moral and spiritual lessons to share.

Constellations representing animals are therefore seen in all cultures and their mythologies—Western and Indigenous alike—and play a prominent role in sky knowledge. In this section to the West called Animal Skyscapes, visitors will discover this clear mirroring of sky and land. Our selected artifacts and art will reflect these animal-sky relations. Chiwara masks from the Bambara of Mali, soapstone animal carvings from the Inuit of Northern Canada, and a carved Maya jaguar figure accompany playful soundscapes and detailed star maps in this highly interactive and engaging section of *One Sky, Many Worlds*.

◀ *Yahdii in the Native Tradition: A Gwich'in (Dene) Star Chart.* Illustrated by Mareca Guthrie. Chris Cannon, Alaska Native Language Center



“We always followed the stars ... Emu, Crocodile, Catfish, Eagle Hawk, and all the stars in the sky. If you lay on your back in the middle of the night you can see the stars all blinking. They’re all talking.”

Uncle Bill Yidumduma Harney



WEST: ANIMAL SKYSCAPES

Sub-Themes

Rhythms

The seasons come and go, the weather varies with time and place, and the animals on earth and in the sky take up their patterns of behaviour that show us these rhythms of life, rhythms of the cosmos.

Spirit Beings

From Loon and Jaguar carrying the stars on their backs, to Coyote and Raven—the tricksters—to curious chimeras like the water panther, spirit beings can be bridges between land and sky and teach us practical and moral lessons.

Myths, Teachings, and Stories

In the stories of the animals of the sky, listeners find understanding and receive teachings from the Elders and Knowledge Keepers who keep the oral tradition alive. Here, the Indigenous voice and the idea of language and knowledge as being one and the same is further explored.

Object Highlights

- Inuit Soapstone Animal Carvings
- Bambara Chiwara Mask
- Maya Jaguar Figure (Reproduction)



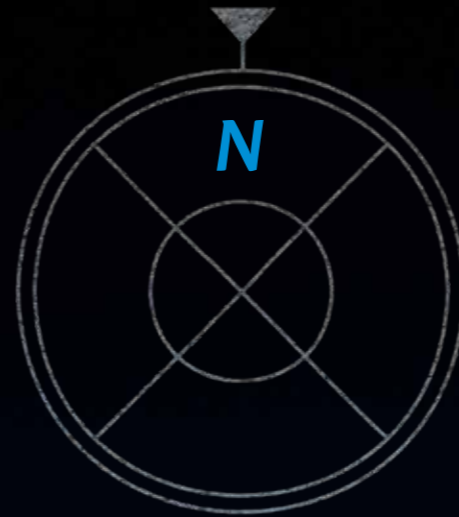
A (Top) Earth/Female Chiwara masks from the Bambara People of Mali, collected by Jan Jansen (U Leiden). Image by Jan Jansen



A (Bottom left) In the Mayan culture the Jaguar is called “Balam”. It is considered a powerful and dangerous animal that has a close link with the deities associated with the underworld. *Mayan Archeoastronomy: Observers of the Universe* fulldome show

A (Bottom right) *Coyote Tossing Up the Stars*. Painted by Melvin Bainbridge. Shared by permission of Indigenous Education Institute

G Smoking gun of a newborn star. K. Stapelfeldt, ESA/Hubble & NASA



NORTH: THE COSMIC CANOE

In the North, the section called The Cosmic Canoe introduces visitors to the close links between sky and water. In practical terms, stars and constellations are the guideposts by which innumerable cultures and civilizations have navigated across vast bodies of water. In spiritual terms, stars, specifically those that make up the Milky Way, are the path of spirits or river of souls.

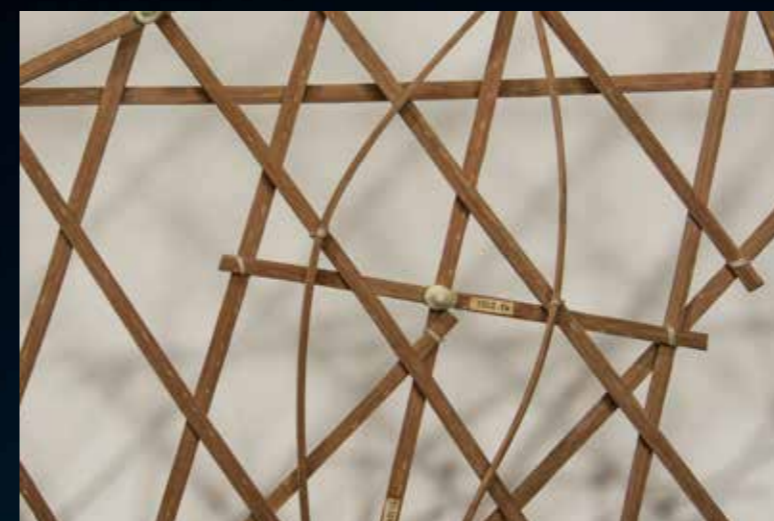
But from the Hawaiians and the Māori of the Pacific to the Algonquin and Inuit of North America, the stars are just one piece of this wayfinding puzzle—the vessels in which they travel are equally important and can be similarly seen in both practical and spiritual terms.

In this section, traditionally western navigation tools will be displayed and interpreted through a decidedly Indigenous lens, encouraging visitors to re-examine their understanding of how these devices figure into notions of “exploration” and “discovery”. Other artifacts presented include a variety of model vessels—a Polynesian outrigger canoe, an Algonquin birch bark canoe, and an Inuit kayak—as well as a contemporary Marshall Island Stick Chart, used for navigation in the South Pacific.

◀ *Bebaamaadizid Anung—Traveler Through the Stars (Detail).*
Painting by William Wilson. Collection of Artist

“It’s a deep connection to everything that surrounds you. You and the sky, you and the birds, you and the sea—you are not separated. You’re one.”

Kālepa Baybayan, Master Navigator and Science Educator, ‘Imiloa Astronomy Center



▲ (Top) Sextant by Jesse Ramsden, c. 1785. Artifact no. 2018.0111. Ingenium Collection

▲ (Bottom) Marshall Islands Stick Chart, c. 1950 (Detail). Artifact no. 2018.0113. Ingenium Collection

◀ View of the sighting wall, or pānānā, at Hanamauloa, Hawai‘i. Kālepa Baybayan, ‘Imiloa Astronomy Centre

NORTH: THE COSMIC CANOE

Sub-Themes

Navigation

Long before European instrument makers were crafting astrolabes, sextants, and precision time pieces, Indigenous seafarers and explorers were masters of using swells, waves, animal migrations, stars, and constellations as navigation tools for their travel.

The Milky Way

Visible from both the Northern and Southern hemispheres, the Milky Way is a bright trail in the sky that provides a visual as well as a spiritual guidepost for travellers.

Vessels

The myriad vessels of the world—from the Māori waka to the Inuit kayak to the Algonquin birch bark canoe—with their ability to transport humans across the water planes of the physical world, makes them well suited for travel to the spirit world as well*.

Object Highlights

- Polynesian Outrigger Canoe Model
- 18th Century Ramsden Sextant
- Marshall Islands Navigational Stick Chart

*adapted from Glenn Langhorst, Former Director of the Alworth Planetarium, University of Minnesota-Duluth and Science faculty at Fond du Lac Tribal and Community College



ABOVE, BELOW & CENTER: KAPEMNI

The mirroring of sky and land—and the idea that there can be transfer or flow between the two—is a concept depicted and practiced in many Indigenous cultures. What is above in the sky, star, and spirit world, is also below on the land, earth, and physical world: as it is above, it is below. From patterns in the stars that denote changes in the seasons to the unseen forces that act on objects both in the sky and on land, this pairing of worlds is real and important.

In this section, that is the center as well as the above and below, visitors will learn about Thunderbirds—supernatural creatures common to many Indigenous cultures—which have the power to both create and destroy life. Also presented here and common in North American Indigenous cultures is the sweat lodge, a ceremony in which participants explore the journey from stars to earth, into the center of the earth, and back through to

the star field below. Additionally, the Māori story of Maui and the fish and how the North Island of New Zealand came to exist provides an enjoyable and accessible visual to reinforce for visitors this idea of mirroring between celestial and terrestrial features.

Here in the center, a broader focus on the element of fire and our human connection to the stars, to spirit, and fire will also be explored—the central fire welcomes all. Visitors to this section can further experience one of the most important cross-cutting themes of this exhibit, “As it is Above; It is Below,” ... and our participation in this cosmic mirroring is key.

◀ Give Away Horses Dress (Assiniboine) (Detail). National Museum of the American Indian, Smithsonian Institute (26/5818). Photo by NMAI Photo Services

“Everything on the land
is reflected in the sky.”

Ghillar Michael Anderson



ABOVE, BELOW & CENTER: KAPEMNI

The pairing of above and below is described both intellectually and visually in Dakota/Lakota star knowledge as “kapemni”: as it is above, it is below. This mirroring of worlds is typically depicted by two tipis lined up vertically so that the tops are touching. The top triangle represents the spirit world or the star world; the bottom triangle is the material world or physical world. The idea is when a mirroring of the star world is created with what’s happening on Earth (or vice versa), a doorway is created and opened between the worlds. There is a flow.

Although this concept can be seen in cultures worldwide, the *One Sky* team, led by Co-Curator and Lead Indigenous Design Advisor, Annette S. Lee, has made the choice to use the Dakota/Lakota word Kapemni as a clear reminder that traditional knowledge and language are inextricably linked. Language is vital to star knowledge—as it will be to this exhibition.

Object Highlights

- Mi'kmaw Quill Baskets
- Lakota Kapemni Motif Items
- Maori Fish Hooks



- ▲ (Top left) *li'ni, the Diné Thunderbird*. Painted by Melvin Bainbridge. Shared by permission of the Indigenous Education Institute
- ▲ (Top right) The central fire welcomes all. Pixabay from Pexels
- ▲ (Bottom) Unknown people (Woodlands), Container Depicting the Cosmological Universe and on the underside Two Thunderbirds, about 1800, birch bark, wood, spruce root, twine (added later). Hood Museum of Art, Dartmouth; Museum purchase; 163.66.15194
- ◀ Tipi at twilight, near East Selkirk, Manitoba, Canada. Christie Taylor



VISITOR EXPERIENCE

One Sky, Many Worlds is, at its core, experiential. A strong emphasis on exceptional objects and intriguing ideas will be carefully complemented by a variety of interactive elements and spaces designed to engage visitors in active participation.

Each exhibition section will feature an immersive experience, audio visual content, and a selection of digital interactives, many of which will be touch free. For example, visitors will be transported from the Mississippi through the Milky Way on to the Pacific Ocean via a beautiful, immersive projection experience; visitors will be engaged in stories as told by Indigenous Elders in their own language; and visitors will also have the opportunity to participate in dynamic activities that show the links between earth and sky and allow them to see the constellations in a whole new way.



- 1 Panoramic film projection
- 2 Projections to floor
- 3 Touchscreen controlled projection
- 4 Gesture controlled interaction
- 5 Interactive touchscreens



▲ Kālepa Baybayan, Master Navigator and Science Educator at the 'Imiloa Astronomy Center, leading a workshop in New Zealand in 2014

◀ The double-hulled sailing canoe, Hōkūleʻa. Image courtesy of Polynesian Voyaging Society. Image credit: 'Ōiwi TV

VISITOR EXPERIENCE

Through *One Sky, Many Worlds* visitors will be:

- exposed to fascinating astronomical and celestial phenomena from a novel perspective and learn new ways to approach both the night sky and science.
- introduced to Indigenous science, traditional knowledge, culture, and worldviews from various areas around the world.
- immersed in a participatory, transformational experience, designed to help them remember their relationship with the night sky and the stars and to reconnect with it; they will be able look to Indigenous star knowledge to help light the spark and rekindle the fire—their connection to the starlight.



◀ Margaret Nazon, *Milky Way Starry Night*, n.d., Beads, glass, organic material, cotton twill fabric on canvas. Collection of Artist

ADAPTING TO YOUR UNIQUE AUDIENCE

Local Indigenous Community

Ingenium and Nomad are committed to accessible and inclusive exhibition design. Especially important for *One Sky, Many Worlds* is that local Indigenous community members feel welcomed and represented. Exhibition design and content details will be made available to host institutions in order for them to collaborate with their local Indigenous partners to create complementary elements, sections or modules to reflect local star knowledge or other relevant traditional knowledge as decided by the community.

Highlight your Collection

Host venues may opt to enhance the proposed artifact selection for *One Sky, Many Worlds: Indigenous Voices in Astronomy* with objects from their own collections. Nomad will collaborate with hosts to facilitate the fabrication of complementary displays as desired. Host venues would be responsible for all associated planning, logistics, and costs.

TURNKEY EXHIBITION

A Kit of Parts

The exhibition will be touring with all the setworks elements required to present the complete display inclusive of all walls, graphics, display cases with integrated lighting, audio-visual and multimedia content and all associated hardware. The Nomad design team will provide an exhibition design tailored to the host's specific gallery requirements.

Gallery Requirements

Host exhibition galleries will need to meet criteria for the display of valuable and sensitive artworks, including appropriate infrastructure for security, atmospheric control and lighting. Hosts will also need to provide appropriate storage for exhibition tour crating.

Tour Management

Nomad Exhibitions will coordinate the exhibition tour and will provide staff to oversee installation and de-installation at all host venues. Inbound transportation and insurance cover shall be the responsibility of the host, working in collaboration with Nomad as required. All transport crates will be included in the exhibition hire, as are all travel and subsistence costs associated with collection loan couriers.

Exhibition Specs

Tour Dates:	Starting late 2022
Size:	Flexible from 600–1,000m ²
Audience:	Multi-generational families; Indigenous communities and youth
Minimum Hire Period:	16 weeks



◀ Gali Yalkgarriwuy Gurruwiwi and Trevor Barrarra Gurruwiwi, Banumbir 2014. Earth pigment, bush string, tree gum, feathers on wood. 166.0 cm – 234.0 cm height. Image: Simon Anderson Photography, Melbourne. Courtesy: Vivien Anderson Gallery, Melbourne Australia



“The Diné-Navajo word for Star, Sitsoii Yoo, refers to my ancient relation from where I came ... When we look at the Milky Way Galaxy at night we are actually looking at ourselves.”

Nancy C. Maryboy, PhD and David H. Begay, PhD, Indigenous Education Institute

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