

Component #: 2.1.2	Component Name: Welcome Video
Exhibit Type:	Media Program
Learning Objective:	Visitors will be welcomed to the Windows Center for astronomy education by members of the Tohono O’odham Nation, including youth, elders and individuals working on Kitt Peak.
Description and Primary Story:	<p>This stand-alone video program plays on a loop and is integrated into a larger background mural that features a glossary of O’odham, Spanish and English words related to astronomy.</p> <p>Core themes include:</p> <ul style="list-style-type: none"> • The Tohono O’odham relationship to the land • The significance of the mountain of I’oligam Du’ag (Kitt Peak) to the O’odham people • The ongoing partnership between TON and NSF at Kitt Peak National Observatory since the first lease signing in 1958 • What it’s like to work at KPNO as an O’odham individual • Welcoming the public to the Windows Center to enjoy astronomy education <p>Individuals for Media:</p> <ul style="list-style-type: none"> • Schuk Toak District Council or Legislative Reps (whomever is willing) • Schuk Toak Youth Council • TON Youth Council • TON Executive Chairman Verlon Jose and Vice Chairwoman Carla Johnson • O’odham KPNO workers • O’odham elders
Content References:	<p>“Ours is the Land” produced by Tohono O’odham Nation, shared by Jacelle Ramon-Sauberan as style reference.</p> <p>https://vimeo.com/223976575</p>

Component #: 3.0.1	Component Name: PresentationTheater
Exhibit Type:	Multimedia Presentation
Learning Objective:	Visitors can experience a wide range of topics through films and media presentations, these can be scheduled to play automatically or via a live presenter.
Primary Story:	<p>Adjacent to the Lobby, visitors will find a theater space available for multi-use programming. For large groups, this area can be used for group presentations or as flexible overflow lab space.</p> <p>Additionally, a large screen and projector will offer customized astronomy visualizations. A simple theater experience will be developed for Phase One, with more complex and immersive programs as part of Phase Two.</p> <p>Visitors will leave with a better sense of how contemporary astronomy, KPNO and NOIRLab in general impact humanity's understanding of the Universe, an appreciation for the importance of the land for the Indigenous peoples (TON). They will also feel an emotional connection to the cosmos as revealed by KPNO and NSF observatories around the world.</p> <p>As identified in the Interpretive Plan, programming in the theater will focus on the following themes and stories:</p> <p>Tohono O'odham Nation</p> <ul style="list-style-type: none"> • Introduction to Tohono O'odham Nation • Cosmology & Culture • Storytelling (during winter months) • Other topics TBD with O'odham advisors <p>The National Observatory</p> <ul style="list-style-type: none"> • All About DESI, Mayall, NUID and more: Meet the telescopes and get introduced to current astronomy at Kitt Peak. • What are NOIRLab's biggest discoveries? • Introduction to Astronomy: How can you get involved as a citizen science? <p>Galaxies and Cosmology</p> <ul style="list-style-type: none"> • How do we study the Universe? • Is our Milky Way galaxy unique? <p>Mapping the Universe</p> <ul style="list-style-type: none"> • Cosmology: Where did we come from and where are we going? • Cosmic mysteries: What are the great unknowns? • Why should I care? How does this relate to me? <p>Current Theories and Fields of Research</p> <ul style="list-style-type: none"> • What is time-domain astronomy? • What are other hot topics in contemporary astronomy, and how do they relate to me?

Component #: 5.7.2	Component Name: The Many Faces of the Sun
Exhibit Type:	Touchscreen media program
Learning Objective:	Visitors explore a variety of solar imagery by choosing from a selection of solar observatories, telescopes and views.
Description and Story:	<p>Contemporary ground- and space-based telescopes are probing the mysteries of our nearest star — and allowing us to visualize the beauty and complexity of our Sun like never before.</p> <p>Visitors can select from touchscreen options of four contemporary observatories/telescopes, each offering unique views of the Sun. They can explore a variety of media, to include:</p> <ul style="list-style-type: none"> • Timelapse solar imagery over multiple years • A live feed of the Sun • Video footage of a Mercury's transit, a solar eclipse, and other phenomena • Still images of the Sun observed at different wavelengths <p>Although still imagery may be used, video will prove most dynamic. Short captions describing the solar phenomena accompany the media.</p> <p>Observatories/telescopes include:</p> <ol style="list-style-type: none"> 1. NASA Solar Dynamics Observatory (SDO) 2. NSO/Inouye Solar Telescope (DKIST) 3. ESA Solar Orbiter 4. NSO/Global Oscillation Network Group (GONG), 6 telescopes offering 24/7 observations of the Sun (live feed)
Potential Media:	<p>NASA's Solar Dynamics Observatory (SDO): SDO captures an image of the Sun every .75 seconds, 10-year timelapse here: https://www.youtube.com/watch?v=I3QQQu7QLoMS https://nso.edu/gallery/gallery-solar-features Daily movies Gallery of solar features</p> <p>DKIST https://nso.edu/telescopes/dki-solar-telescope/ https://nso.edu/telescopes/dkist/first-light-full-field-movie/</p>

McMath-Pierce Solar Telescope

Exhibit

Media Outlines

	<p>ESA Solar Orbiter: https://www.esa.int/Science_Exploration/Space_Science/Solar_Orbiter</p> <p>NSO/GONG: https://farside.nso.edu/los_movie.html Live feed of Sun</p>
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Component #: 6.2.1	Component Name: NSF Observatories: Media Interactive
Exhibit Type:	Media Interactive
Learning Objective:	Visitors can explore 360-degree views of NSF observatories working to advance our understanding of the Universe.
Primary Story:	<p>Get to know these NSF observatories across the globe that are advancing our understanding of the Universe.</p> <p>This touchscreen program complements adjacent graphic profiles of NSF observatories, offering a deeper dive into research and telescope instrumentation. Visitors can explore a series of layers—built from existing/available imagery and footage—to include:</p> <p>Layer 1: Explore what the telescopes look like and where they are located, including 360-degree views of each observatory</p> <p>Layer 2: Explore the research including media, sounds or imagery related to key research.</p> <p>Layer 3: Meet a few of the scientists. Watch short clips of existing media interviews from researchers working at these observatories.</p> <p>Observatories include:</p> <ul style="list-style-type: none"> ● NOIRLab <ul style="list-style-type: none"> ○ Kitt Peak National Observatory ○ Cerro Tololo Inter-American Observatory ○ Vera C. Rubin Observatory ○ International Gemini Observatory ○ US Extremely Large Telescope Program ● NRAO <ul style="list-style-type: none"> ○ Atacama Large Millimeter/submillimeter Array (ALMA) ○ Karl G. Jansky Very Large Array ○ Very Long Baseline Array ○ Green Bank Observatory ● Icecube Neutrino Observatory ● Laser Interferometer Gravitational-Wave Observatory (LIGO) ● National Solar Observatory's Daniel K. Inouye Solar Telescope ● South Pole Telescope

McMath-Pierce Solar Telescope

Exhibit

Media Outlines

Component #: 7.7.1	Component Name: Infrared Camera
Exhibit Type:	Interactive
Learning Objective:	Visitors can explore an infrared camera that detects the heat radiating from their body and projects it onto a screen.
Primary Story:	There are wavelengths of light beyond what our eyes can see. Infrared waves have longer wavelengths than visible light and can pass through dense regions of gas and dust with less scattering and absorption. This means it can reveal objects in the universe that can't be seen in visible light using optical telescopes. With a different coating on its mirror, The McMath-Pierce Solar Telescope can also be used for imaging infrared light.

McMath Pierce Solar Telescope Exhibits

Preliminary AV Equipment List

The following AV Specifications should be used as guidelines. Media/AV supplier to provide final recommendations to client.

No	EXHIBIT	TYPE	MAKE	MODEL
2.1.2	Intro to KPNO & TON Partnership	43" Display	Samsung	QM43C
		Mount	premier	P2642F
		Pro SoundBar	JBL	PSB-1
		Computer (PC)	TBD	
		Cables & Connectors	TBD	
3.0.1	Presentation Theater	Projector	Panasonic	PT-MZ882
		Short-throw Lens	Panasonic	ET-ELW22
		Projector Mount	TBD	
		200" retractable screen	TBD	
		7.1 Surround Sound audio system with amps as required	TBD	
		Computer (PC)	TBD	
		Cables & Connectors	TBD	
5.7.2	The many faces of the Sun	32" touchscreen	ELO	3243L
		Mount	TBD	
		Pro SoundBar	JBL	PSB-1
		Computer (PC)	TBD	
		Cables & Connectors	TBD	
6.2.1	NSF Observatories	32" touchscreen	ELO	3243L
		Mount	TBD	
		Pro SoundBar	JBL	PSB-1
		Computer (PC)	TBD	
		Cables & Connectors	TBD	
7.7.3	Infrared Camera	32" Display	ELO	3243L
		Mount	TBD	
		IR camera	TBD	
		Computer (PC)	TBD	
		Cables & Connectors	TBD	