

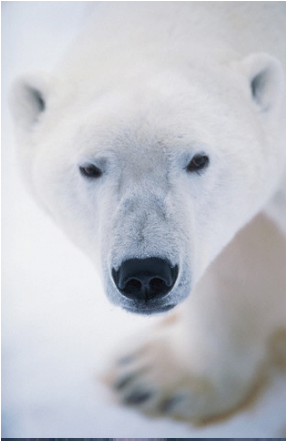
POLAR FRONTIER

Columbus Zoo

Initial Evaluation of Interactives

11-30-2006





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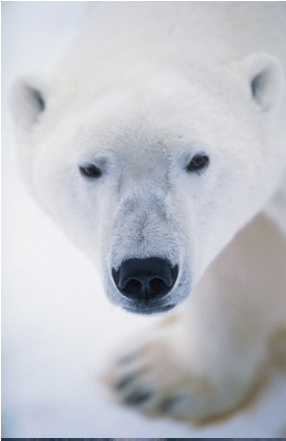
In this document, you'll find our initial responses to each of the interactive ideas generated on November 9th and 10th. Each idea has been briefly evaluated from both a storytelling and a technology perspective in hopes that this may provide direction as we move forward into the design and development stages of the Polar Frontier Interpretive package.

The evaluations adhere to the following format:

Idea Evaluation: A brief thought on how the interactive could contribute to the overall interactive package.

Mini-Treatment: A sentence or two of narrative which explains how the interactive might work within the exhibit storyline.

Technology Evaluation: cursory thoughts on how the interactive might be developed from a technology perspective.

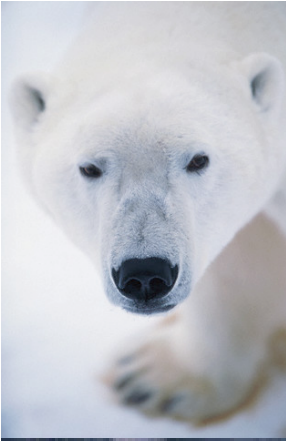


Pete Tracking Stations

Idea Evaluation: This is a fantastic vehicle for conveying both animal information and starting to introduce a conservation message in the early parts of the exhibit. Rather than having static signage; each animal viewing location along the trail would feature dynamic video content that could be easily changed to reflect the animal currently in that exhibit. This content can be triggered by button, motion sensor, or simply repeat on a loop.

Mini-Treatment: As we approach the viewing location for the polar bears, a crudely fashioned yet “high-tech” tracking station comes to life with a “live” satellite feed featuring Polar Pete at a remote location helping researchers monitor polar bears. Pete would provide basic animal information as well as an introduction to the conservation challenges facing that animal in the wild. Each tracking station appears to operate from a solar powered system fashioned by Pete.

Technology Evaluation: Each tracking station location consists of plasma screens of various sizes, solar panels, satellites, and other scientific/research-type equipment. Each station is heavily themed to look as though Pete has fashioned them himself from materials he had at his disposal. The physical implementation of each station could cost a few thousand dollars each based on the choice of display. Additionally, one needs to consider producing content for each of the displays.



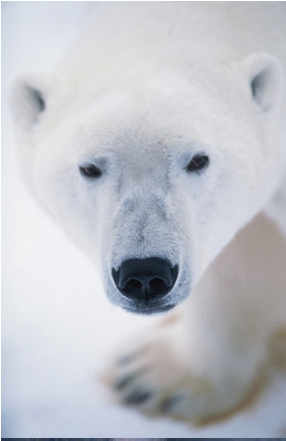
Melting Ice into a Water Fountain

Idea Evaluation: This is a simple and effective way to communicate the melting of ice and glaciers without hitting people over the head with it. It could be out on the trail as people are walking around. This could be a recurring thematic element throughout the Polar Frontier.

Mini-Treatment: The water fountain is created by the melting of a large chunk of glacial ice. It hangs above the fountain and drips down into a container below, where the pipes appear to make it into a more conventional water fountain. As always, these devices have been fashioned by Pete from old mine camp materials.

Technology Evaluation: This would not be a real chunk of ice, but rather a piece of acrylic made to look like ice. Water would drip down the outside creating the illusion that it was melting. This custom fountain would likely cost in the realm of a few thousand dollars.





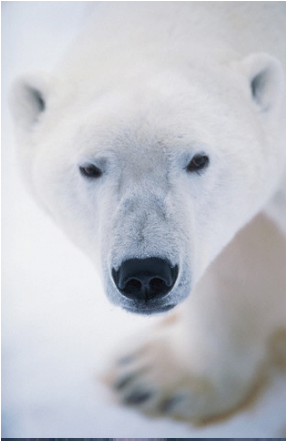
Kelp Piles (rolling around in it)

Idea Evaluation: Not entirely sure how this would be an educational experience for the guests, though it would allow guests to imitate polar bears. This might be best suited as a part of the playground area.

Mini-Treatment: Part of the playground area is a “kelp box”, similar to a sand box, but with simulated kelp strands.

Technology Evaluation: The simulated kelp would cost in the range of a few thousand dollars to fill a space of 5’x5’ a few inches deep. Simulated plants that are safe for kids to play with outdoors day after day are also an issue of maintenance and cleaning.



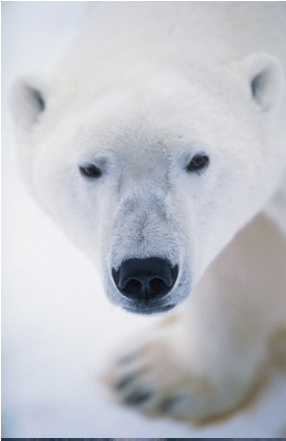


Interactive Maze

Idea Evaluation: This major playground feature creates an interactive mine shaft maze for older kids. It is similar in style to the abandoned mine maze found on Tom Sawyer Island at Disneyland. In various caverns kids can find small interactive activities... perhaps smell boxes, ice walls, or simple games.

Mini-Treatment: To one side of the playground mining equipment we see an abandoned mine shaft entrance. Upon entering the tunnel we're presented with a variety of paths each leading deeper into the mine. The paths intersect and often dead-end in small chambers where we find various interactive activities.

Technology Evaluation: The maze is constructed in such a way that it feels as if one is descending below ground, but in reality, the entire structure is at or slightly above groundlevel. It is important to reference the Disneyland Tom Sawyer Island maze for a sense of how this can be effectively accomplished. This is a major playground component and represents a significant investment. The entire structure is primarily sculpted concrete and fiberglass. Theatrical lighting and sound effects are essential to successfully realizing the mine.



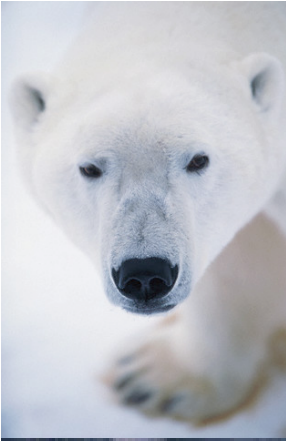
Smell Exploration

Idea Evaluation: This could be a fun way to teach people about the polar bears' sense of smell. It could be in the cabin as an 'experiment' or perhaps in the playground's Interactive Maze.

Mini-Treatment: The guest enters the area with the goal of finding food (in this case, candy) and avoiding the fouler smells like rotted fish and garbage. For school groups and educational programming, an additional level could be added to the game. When kids find the candy successfully, they could be given a Swedish fish as a prize.

Technology Evaluation: A number of smell resources are available out there. They typically cost on a few dollars for a packet that lasts from one to four months depending on how you distribute the smell. This would be a continuing cost to keep this experience operational, but it is a minimal cost.





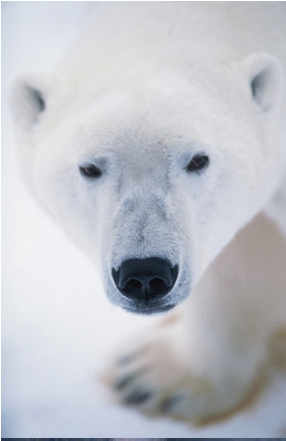
Permafrost Telescope on the Trail

Idea Evaluation: This is another simple idea that can help to communicate to people the rapidly changing environment in the polar regions. It fits well with the overall storyline and should be located out on the trail, near the “Permafrost Pathway.”

Mini-Treatment: As the guest approaches the permafrost trail, there is an old telescope with a sign: “See the trail in 1990!” The guest looks through the telescope and can move a lever on the top to ‘transform’ the view to a plain pathway from before the permafrost melted.

Technology Evaluation: This is another rather simple technological trick. It could be done with a photo overlay, and the lever could control the opacity of the photo, thus making it appear that the trail is morphing. This would be a very inexpensive prop to create, almost certainly coming in under \$1000.





Human/Bear Comparison

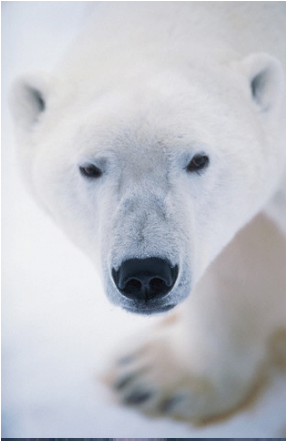
(Smell, Jaw, Paw, Size, Mass)

Idea Evaluation: Providing opportunities for guests to compare themselves to the bears is a great educational idea. It is most likely to have an impact out on the trail someplace between the two bear environments so that people can think about what they are seeing. As for the individual interactions, there are a number of options ranging from size and weight comparisons to eyesight and paw-size. Given that these would be outdoors and in an area where people need to continue moving, it is probably best to create very simple experiences.

Mini-Treatment: Near one of the bear viewing locations, the guest is presented with skulls of the two types of bears, 'paws', and a scale showing the relative weights of the bears. There are several opportunities to guess which is which bear, with the button lighting up when the guest selected the correct bear. There are also opportunities to compare yourself to the bears.

Technology Evaluation: These comparisons are pretty low on technology.





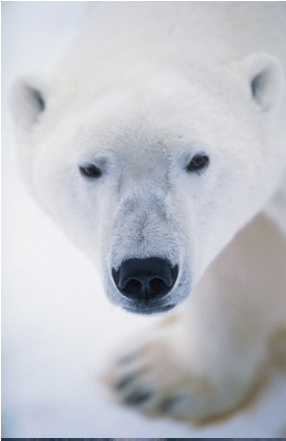
Bear Environment Enrichment

Idea Evaluation: This allows the guests to interact with the bears in a direct, but safe manner providing a fun experience for the guests and environmental enrichment for the bears. Of course each of these experiences would be scheduled according to keeper's enrichment plans.

Mini-Treatment: Guests would control/initiate simple changes in the bear's environments. By pressing buttons or moving levers, a guest could release bubbles in the polar bear pool, vary the amount of water flowing in the stream, or even launch water jets.

Technology Evaluation: These environment enrichments are pretty low on technology, relying primarily on themed buttons and levers. It could get more sophisticated by creating a programmable back-end to the system that allows keepers to specify when the interactions are available to guests.





Tide Pool Water Testing

Idea Evaluation: While this may not be a viable activity for regular guest traffic, it could be a fantastic educational opportunity for school groups or zoo educational programs.

Mini-Treatment: Students take water samples from the tide pool and return to the lab to analyze the samples.

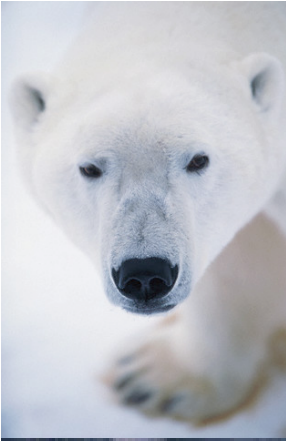
Technology Evaluation: Technology involved in this activity would be determined by the zoo's educational programming team.

Sled Dog Racing

Idea Evaluation: A sled dog racing experience could prove very entertaining, but is probably detracting from the core message of the Polar Frontier program.

Collecting Clues

Idea Evaluation: A clue collecting mission might be effective as part of a controlled educational experience, but likely wouldn't be a viable regular guest experience. Students would be issued a mission and explore the Polar Frontier to collect information about the animals and global climate change.



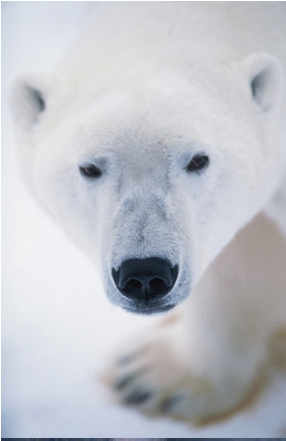
Simulated Tundra Buggy

Idea Evaluation: Installing a simulated tundra buggy provides a great opportunity for viewing not only the real bears in the exhibit, but also the HD wild polar bear footage from PBI.

Mini-Treatment: Guests enter a tundra buggy that has become stuck in the mud and oriented such that it can be accessed at ground level. The windows on each side of the vehicle look out into the bear exhibits while the front windshield looks out into the “real” tundra.

Technology Evaluation: Through the use of a projection screen and an “infinity lens” the experience is that of looking out into the “real-world” rather than directly at a screen. The expenses involved in this experience include recreating the tundra buggy itself and developing the projection/lens system to custom fit the windows.





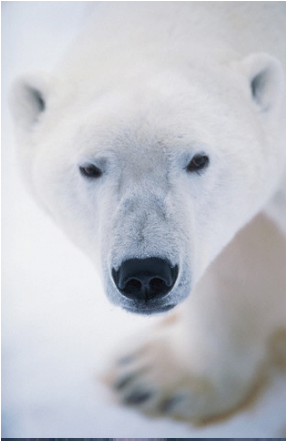
Arctic Fox Camouflage

Idea Evaluation: By providing opportunities for guests to learn about the camouflage adaptations of the arctic fox by actually trying it out for themselves, they can have fun and also increase their likelihood of retaining the information.

Mini-Treatment: Inside the Arctic Fox viewing station, guests find opportunities to camouflage themselves with various backgrounds, much like an arctic fox at different times of year. Either physically with standing cutouts to place your head in or digitally by means of a greenscreen guests can see themselves as a fox blending in with it's environment.

Technology Evaluation: The low-tech "cut-out" means of achieving this experience could be more effective and far easier to implement than a more sophisticated "high-tech" solution.





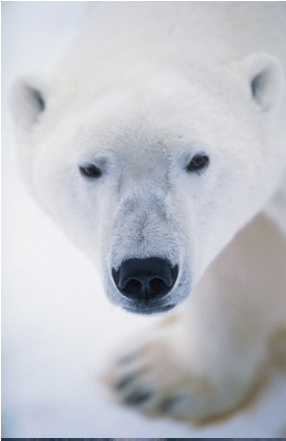
Ecosystem Scale

Idea Evaluation: A large circular balancing game where guests learn about balanced populations in an ecosystem by placing animals of varying weights on a large, circular, teeter-totter-like scale. Polar bears are larger and heavier than foxes or seals and placing too many would tip the scale. Likewise the number of fish must be great enough to sustain a seal population or the scale would tip.

Mini-Treatment: Guests could encounter this interactive either in a viewing location along the trail or perhaps even in the playground area.

Technology Evaluation: This is a game that relies entirely on size and mass to balance an ecosystem. Technology is minimal to nonexistent, though the interactive element should be well-crafted and well-lit.



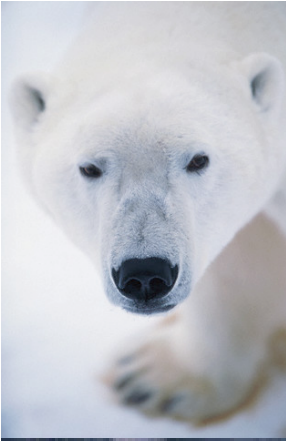


Guided Audio Tour Rental

Idea Evaluation: This is a fantastic means of catering to guests that want to have a more in depth experience at the Polar Frontier. It is non-obtrusive for guests that are “just browsing” and can have dynamic content that creates a somewhat different experience each time one takes the tour. It is potentially a very direct way of connecting the conservation message of the Polar Frontier with the animals guests are viewing along the trail. Not to mention a valuable source of additional revenue from rental fees.

Mini-Treatment: Polar Pete is launching yet another of his entrepreneurial ventures... He’s created a guided tour of the land surrounding his property. Guests rent headsets from a small kiosk near the entrance to the main trail. The headsets are triggered by transmitters located along the trail and play content featuring Pete and his friends chatting about the surrounding area. They talk about the Drunken Forest and how it got that way, about how one of Pete’s newer visitors got the Tundra Buggy stuck in the mud, or simply share stories about an encounter they may have had with one of the bears recently.

Technology Evaluation: The infrastructure and content creation for an experience like this is no small undertaking, but the results could be simply amazing. In addition to the “back-end” of the system, there is also the initial capital investment for acquiring the headsets themselves.



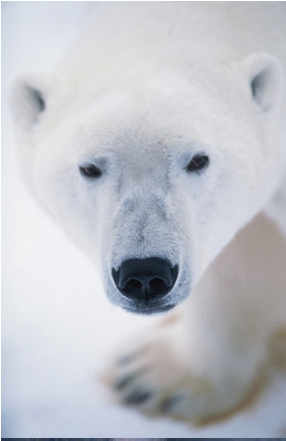
Geodesic Tent

Idea Evaluation: Encountering a geodesic tent could help guests understand the harsh conditions that polar scientists face in the field.

Mini-Treatment: Typically these tents are used to brave frigid, windy conditions in Antarctica or atop glaciers. Wind buffets the walls of the tent, but because of its shape, the tent holds fast. Inside guests could pull a simulated ice core sample out of the ground just like polar scientists.

Though there not currently any “glacier” locations along the trail, that’s not to say there couldn’t be, or that on of the caverns in the interactive maze couldn’t open onto a glacier... perhaps even providing a place for the aurora borealis effect to occur if the ceiling in this chamber was domed to create a simulated night sky.

Technology Evaluation: Going so far as to create a place for the tent to exist could prove to be incredibly expensive, even if it was part of the interactive maze. While this components of this environment could get expensive, the tent and ice core activity inside do not rely on technology to tell their story.



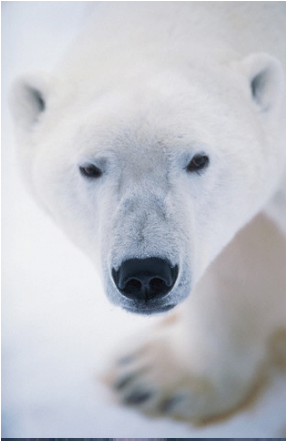
Ice Flow Jumping

Idea Evaluation: This provides a great opportunity to help guests physically understand the challenges polar bears face as sea ice melts in the arctic.

Mini-Treatment: Perhaps located in the polar bear underwater viewing area, a large section of the floor appears to be a virtual body of water with ice flows bobbing in the waves. Guests jump from one ice flow to another as they gradually move further and further apart. Just as it becomes more difficult for polar bears to swim from one ice flow to another, it becomes more difficult for us to jump from one to another.

Technology Evaluation: A number of technologies exist to make this interaction possible... among the more established are: Playmotion, Gesturetek (GroundFX), and Reactrix. Ballpark estimates for any of the systems range from \$40,000 to \$100,000 depending on the size of the area and number of projectors required.





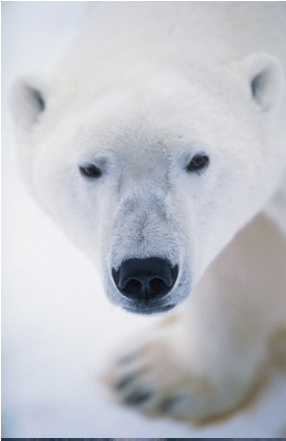
Holographic Polar Bears Swimming

Idea Evaluation: Watching polar bears swimming between ice flows could be a fascinating visual experience even if it wasn't holographic. It would also help to reinforce the fact that it is becoming more difficult for them to reach ice flows as they melt and drift further apart.

Mini-Treatment: This would tie in very well with the previous idea of guests jumping between ice flows. Polar bears could be seen swimming between ice flows as they are holographically projected either above the guests heads or perhaps in front of them as they play. Another option is to project the polar bears on the underwater viewing window itself, much like the new Finding Nemo attraction at Walt Disney World. The projected bears would actually appear to be IN the water on the other side of the glass. This could prove very useful when there are no bears in the water.

Technology Evaluation: To holographically project anything one needs a projector and a transparent surface to reflect the projection onto. We are looking into the technique used in the Disney attraction and will have more information soon.





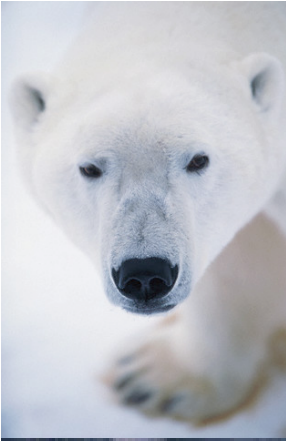
Dripping Water Soundscape

Idea Evaluation: This is a very simple, yet effective means of reinforcing the notion the ice is melting and the arctic is getting warmer.

Mini-Treatment: While watching bears in the underwater viewing structure, guests are aware of ice melting somewhere by the sound of water dripping in the cavern. Perhaps the drips even get creative once in awhile and actually make short musical phrases.

Technology Evaluation: Surround sound speakers could be concealed in the ceiling of the cavern and play back a surround mix of occasionally dripping water.



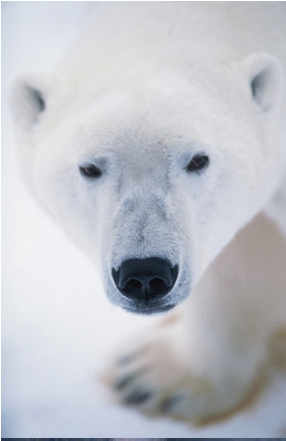


Catch and Release Fish Game

Idea Evaluation: While this is a valuable concept for kids to learn, it does not seem to fit in with the overall concepts behind the polar frontier area: to learn about the animals in the exhibits, and to teach about how global warming affects them. Teaching too many ideas in one exhibit will only dilute the lessons that we want the guests to walk away with.

Water Cycle Dice Game

Idea Evaluation: An involved/structured game like this would likely prove more successful as part of a school group activity or zoo education program. It could also be incorporated into the online Polar Frontier experience. Additionally, the water cycle is introducing yet another educational concept that we need to discuss amidst so many others that are at the core of the Polar Frontier conservation message.

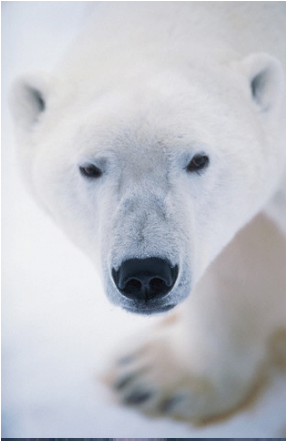


Polar Mission Control

Idea Evaluation: Guests will hopefully walk away from this experience understanding the complexity of managing research teams around the world from one central location. They would also get an important introduction to some of the incredible research being carried out even as they stand there. A number of experiences would be found in this area including being able to check-in with the research teams via “satellite,” monitor the progress and supplies of various expeditions, and track weather that could affect the teams in the field.

Mini-Treatment: Among the more complex endeavors underway at Pete’s facility is the monitoring and coordinating of many polar research teams all over the world. Guests encounter expedition coordinators and researchers in this area that help them to understand and try out various “mission control” activities, each of which are discussed in detail on the following pages.

Technology Evaluation: The technology associated with each Mission Control experience will vary, but this is thematically a “high-tech” environment that has found itself existing in a very “low-tech” world. Everything should have a technologically complex appearance.

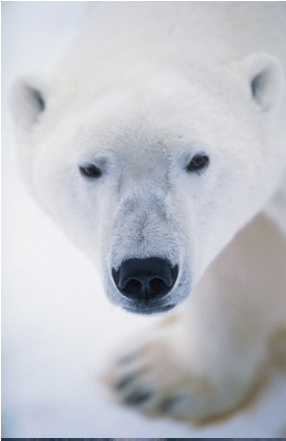


Polar Bear Monitoring

Idea Evaluation: Monitoring bears, both in the zoo's exhibits and in the wild will help guests to understand how and why it is important for researchers to collect this data. Not only is collecting the data an interesting activity for guests, but it could also provide valuable continuous observations for the zoo. As with many of the Polar Frontier experiences, average guests, may leave with only a cursory understanding of the research process, but this activity provides a valuable hands-on teaching tool for structured educational programs.

Mini-Treatment: Guests can take a seat at any of a number of monitoring stations, each with banks of monitors that display video feeds from Polar Frontier bear exhibits and live cameras in the arctic. Guests can observe the bears and take notes on any of the monitors. Embedded in the desk, guests find a digital notebook that allows them to check various activities that they see the bears doing and log the time and date of their observation. Other options might include helping guests identify individual bears based on behaviors or physical characteristics.

Technology Evaluation: This is a fairly technologically complex undertaking. Live cameras in the exhibits could even feature pan/tilt heads that would allow guests to take control of the camera and explore the area further. In addition to the technology itself, the record-keeping application needs to be developed along with any other associated content.

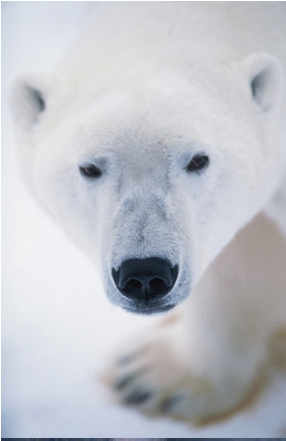


Research Teams Around the World

Idea Evaluation: This Mission Control activity virtually connects zoo guests with real polar scientists around the world. Not only do they have the opportunity to “talk to” the scientists about global climate change but this will also help them understand the challenges associated with working in a time zone on the other side of the world.

Mini-Treatment: Finding themselves behind a “Mission Control” style desk, guests will choose which research camp they wish to connect to via an interactive map or short wave radio. Depending on time of day and location of the research project, guests may find scientists working in the middle of the night or perhaps even napping. The researchers will chat a bit about the work they’re doing and the challenges they face in the process. Content would vary based on time of day.

Technology Evaluation: Content and theming is the real “selling” point of this interaction. The technology can be as simple or as elaborate as one wants. Of course it should look infinitely more technologically complex than it really is.



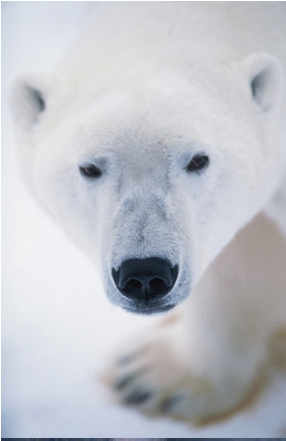
Ice Core Examination

Idea Evaluation: This concept provides a unique opportunity to introduce guests to the actual research methods used by polar scientists around the world. Guests would be able to pull a simulated, oversized ice core and examine it in the same manner that scientists study real ice cores. While the average guest may leave only knowing that scientists learn a lot from studying ice cores, this could be explored in greater depth by school groups and other structured educational programs.

Mini-Treatment: In a laboratory-type setting within the main building, guests choose ice cores from a “freezer” and examine them using an oversized light table. In an ice core sized, dry-erase notebook they can then record data such as climate history, air quality, and other valuable information.

Technology Evaluation: The technology here is really very simple, this experience relies primarily on a well themed, well executed presentation.



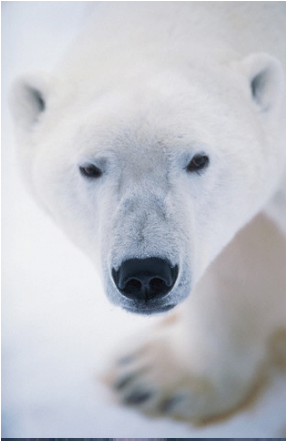


Interactive Maps

Idea Evaluation: This concept could be used in a variety of ways throughout the entire polar frontier experience. Possibilities include navigational aids along the trail, means of interacting with the Pete tracking stations located at animal viewing stations, and as a stand-alone activity that could be found at Mission Control inside the main building.

Mini-Treatment: Guests would have the opportunity to interact with the maps through touch-screens or imbedded buttons to call up various pieces of associated content. Some maps could scroll backwards or forwards in time showing permafrost, sea ice, or thermal images. Others could merely be a way of interacting with other content displays. For example touching a polar bear symbol in northern Canada would “connect” you with a researcher studying the bears in that part of the world.

Technology Evaluation: The technology used in each map will vary based on it’s intended purpose, but could consist of touch screens and associated content or physical buttons that trigger content on other displays.



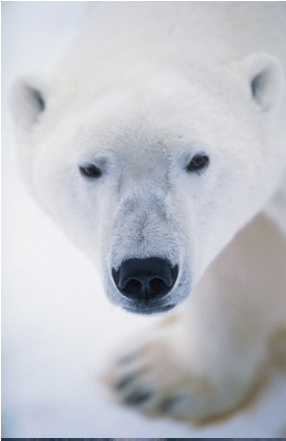
Rising Sea Level Experiment

Idea Evaluation: This activity could help guests to understand the danger that melting sea ice poses to coastlines and the human settlements found along the coast.

Mini-Treatment: Perhaps found in one of the chambers of the interactive maze, guests would encounter a small islet on which they can place various small man-made structures (i.e., homes, farms, fences). Then by turning a lever or pushing a button the water level starts to rise, taking over the coastline and washing away the human structures. This could be concurrently illustrated with a small video display showcasing real-world examples.

Technology Evaluation: Technologically speaking, this is a very simple interactive experience based on water/river tables found at children's science museums.





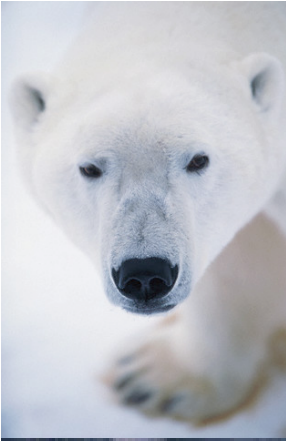
3D Maps from Byrd (BPRC)

Idea Evaluation: Providing 3D glasses may not be the most economically viable option for enabling guests to view the stereographic maps from BPRC, but there is a remarkable plasma screen display on the market that enables viewers to see a 3D image without glasses. These could be used to create some really fantastic images that might be found in Pete's facility.

Mini-Treatment: Guests peeking into Pete's office might find that a few of the pictures he has hanging on the wall aren't quite what they expected... they really are 3D images that seem to jump right off the wall. We might find animated 3D maps of the arctic region, Pete's home movies in 3D, or animal images/video/information.

Technology Evaluation: The plasma displays used to create the 3D effect are available from Phillips. There's also the cost of content creation for the displays.





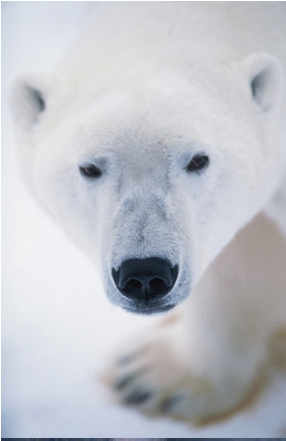
Panorama of Receding Glaciers

Idea Evaluation: The interactive qualities of this idea are exciting and novel, and can make a big impact. It could be used not only to illustrate glaciers receding, but also melting sea ice and global climate change. Given the projection elements of the experience, it will want to be housed indoors; most likely in the main building.

Mini-Treatment: As guests approach what appears to be an ordinary poster-sized photograph of a glacier, they discover that it is a large spandex panel on the wall. A sign or perhaps an audio cue encourages them to touch the screen to see the difference that 30 years has made on the glacier in the photo. As they push the screen in, the glacier advances in the photo back to where it was 30 years prior. The other areas remain in today's time unless they are also pushed in.

Technology Evaluation: This would involve implementing and customizing a Khronos Projector system, which was created by a professor in Tokyo. We are waiting to hear from him how much such a system might cost.





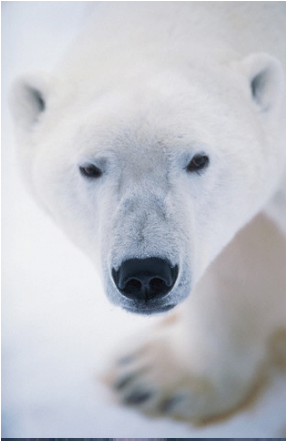
Thermal Maps/Infrared Gun

Idea Evaluation: These ideas are much stronger together than they would be on their own. This has the potential to be a valuable educational experience. It could be set in the main building along with the other important research work.

Mini-Treatment: There is an area with a map of the arctic. If viewed through the infrared filter, it displays colors relative to the temperatures in that part of the world. A person can step in front of the screen as well and see how warm they are. There is also an infrared gun which can be pointed at various places on the map and at other people to discover their temperatures.

Technology Evaluation: The technology involved would take a great deal of research to determine the necessary components.



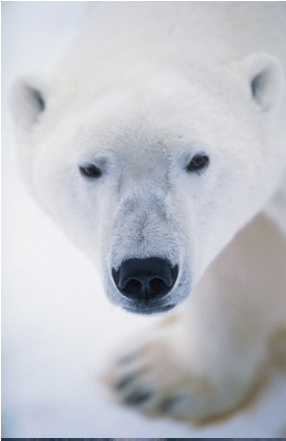


Guiding Lights for Polar Bears

Idea Evaluation: This is a great way to get guests to interact to achieve a common goal, and it could be very effective at teaching them the plight of the bears. One of the biggest problems is the space and controlled environment conditions (lighting, traffic, etc.) that such an experience requires. It would have to go in the main building to allow for a large enough space and control of the environment. Using the lights like in the game “Guiding Lights” would involve always having someone to oversee the experience, but the audience could interact in other ways that would not involve handing out props.

Mini-Treatment: Guests enter a room where they are shown a quick introduction to how to help guide the polar bear through the ice flows. If they all lean left, the bear goes left. If they all lean right, the bear will go right. They all lean together to help guide the bear from one ice flow to another.

Technology Evaluation: Eliminating the lights makes this a much simpler undertaking. Required technology would consist of a video camera and a computer to run the experience. The intro where the guests are taught to lean left and right actually calibrates the system so that the audience size can vary. Aside from designing the game, the hardware could range from \$2000-\$5000.



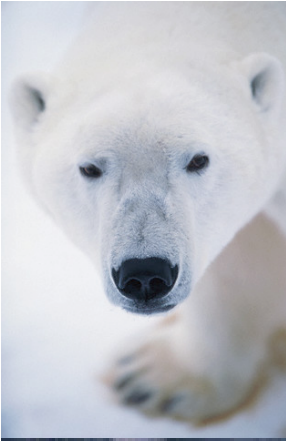
Predicting Animal Adaptations

Idea Evaluation: Changing environments can cause species to adapt over time. This experience would allow guests to predict how animals might change if the climate continues to get warmer.

Mini-Treatment: Either through a touchscreen or perhaps some physical means, guests are presented with a set of climate conditions and a set of adaptations that a particular animal might develop to better survive in the environment. By selecting an adaptation, guests can see what that animal might look like.

Technology Evaluation: This game would be developed to run on a PC computer and could also be incorporated into Polar Pete's website.



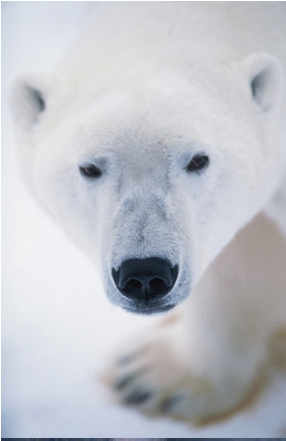


Polar Survival School/Try On Gear

Idea Evaluation: This is a fun and educational way of demonstrating just how difficult life in the polar regions really is.

Mini-Treatment: Guests can try on various pieces of polar clothing from Pete's closet and experience how bulky it can be and why it's important to dress properly for arctic survival. A display next to the closet shows real scientists gearing up for an expedition and chatting about how their gear helps them work in the cold and windy environment. An interactive kiosk might enable guests to make choices about expedition supplies based on cost, weight, and other factors.

Technology Evaluation: If this is realized as an opportunity to try on real clothing, we're looking at a very low-tech experience. The display near the closet might contain an LCD monitor to display video content. A PC-based kiosk could be used for the expedition supply game.



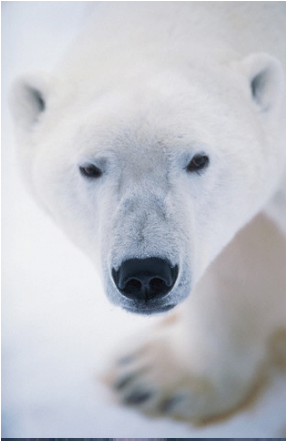
CO2 Cloud

Idea Evaluation: The amount of CO₂ we produce directly affects the global climate. An experience in which a guest actually creates and controls the size of a visible CO₂ cloud could very effectively drive home the effect that one person's effort can have on reducing emissions.

Mini-Treatment: By making choices in a touchscreen based survey, the guest influences the size of a real or perhaps virtual cloud of CO₂. Choosing to buy a hybrid, an SUV, or use mass transit will have a direct affect on the cloud.

Technology Evaluation: This would be developed as a PC-based interactive station that would ideally control a real cloud of CO₂ in a sealed chamber. Alternatively, the cloud could be a virtual representation on a monitor or perhaps on a "pepper's ghost"-type display inside a chamber.



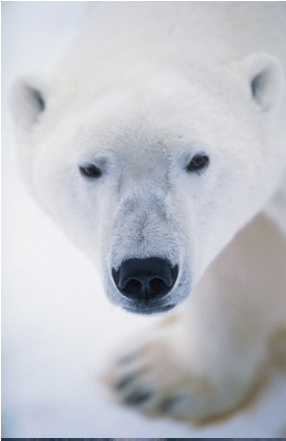


One Person Can Make a Difference

Idea Evaluation: Helping guests understand that they can make a difference is essential to achieving the aim of the Polar Frontiers's conservation message. By creating an experience in which the guest can see the pyramid effect that they can have in the world if they and just five of their friends make an environmentally sound choice, and if each of those friends do the same, we might be able to inspire kids to start making a difference.

Mini-Treatment: Using the example of changing just one light bulb in a guest's house to an energy saving compact fluorescent, guests can choose how many friends that they would like to tell about it... a board of LEDs begins to light up as those friends tell other friends and so on... Eventually thousands of people could have made the switch to compact fluorescent because of just one individual's efforts.

Technology Evaluation: Creating an LED board and the associated circuitry is a painstaking process, but the software and PC-based interface should be relatively easy to create.



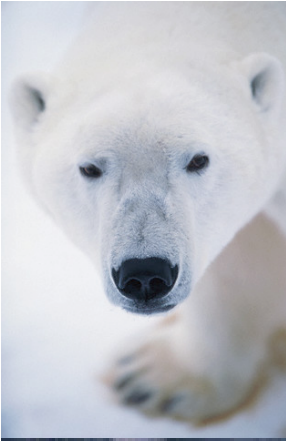
Sustainable Resource Choices

Idea Evaluation: It is very educational to provide a way for zoo visitors to see that their choices can affect in the arctic world and the polar animals' life. By choosing to use sustainable resources, we can have an impact on the world around us.

Mini-Treatment: Guests respond to various lifestyle questions at a kiosk near the coin wall. The kiosk responds with a description of what the Earth might be like if everyone lived just like them and encourages more environmentally friendly choices to consider for each of their responses.

Technology Evaluation: This is a PC-based kiosk.





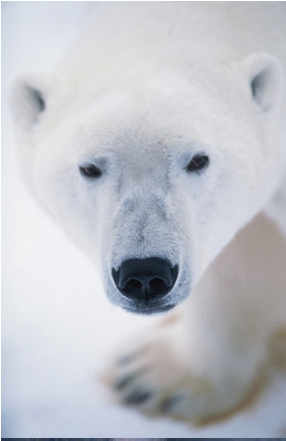
Aurora Borealis

Idea Evaluation: This is more of a place-making item than an interactive. Place-making is still a very important aspect of the Polar Frontier exhibit, since those details are what will get the guest to truly but into the experience. This could also be an idea that we look at as a seasonal tie-in to WildLights on a larger scale, perhaps projecting on large transparent outdoor screens.

Mini-Treatment: Within the cabin-turned-research-center, there is a gap in the old boards that make the ceiling. Long ago, the wood fell through during a particularly heavy snow. Above the boards you can see the nighttime sky of the arctic, including the beautiful Aurora Borealis.

Technology Evaluation: This is a relatively simple effect to create. It can be done through projection, lasers, or even theatrical lighting. It could cost from \$5,000 and up beyond \$50,000, depending upon the quality of the projector system and associated content.





Polar Pete ONLINE

Idea Evaluation: This website has the potential to enable guests to continue their Polar Frontier experience long after they leave the zoo, and to explore global climate change in far greater depth than is possible at the zoo. It is a great idea that kids especially will latch on to very quickly.

Mini-Treatment: In the main building, kids and their parents can pick up a brochure with a link to Pete's personal website and blog. Once home, they can go online and read more about Pete's Polar Adventures. These could include stories about the bears, tips to cut back on consumption, daily polar intrigues, scientific findings, etc.

Technology Evaluation: This concept involves a dedicated webmaster. Even if you use a pre-existing blog service, you will still need someone to update the entries. If you choose to have an entire website developed, that is another significant investment. Far too often, exhibit websites start out with great potential and then fall victim to never being updated after their initial release. The main costs associated with this idea are development labor.