

# The Open Lot Project as Envisioned by the Stanford Designing Learning Spaces Team

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Education 303X: Designing Learning Spaces

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Prepared for Professor D. Gilbert

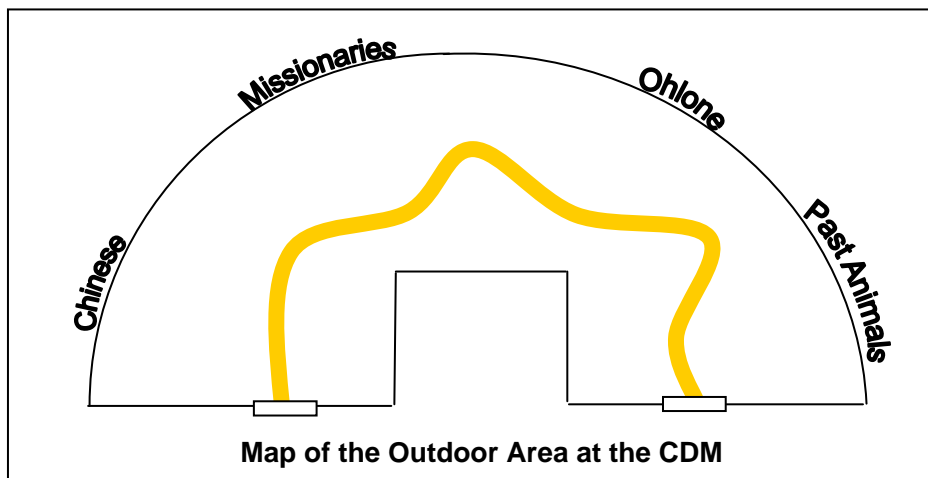
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## Background

The Children’s Discovery Museum (CDM) in San Jose, California resides on a beautiful stretch of park adjacent to the Guadalupe River. Throughout the history of the area, the river has played a vital role in the lives of the people, animals and plants that have lived there. The CDM is hoping that the Guadalupe might enrich the lives of their visitors as well. Through their newly proposed “Open Lot Project,” the museum wants to transform the park area immediately behind the museum into an exhibit that celebrates the wonder of the outdoors as well as connects their visitors to the significant natural resource in their back yard. The CDM asked us to think about what types of exhibits might help create a spark of learning about the river and the outdoors. Specifically, they asked us to focus on how the fence needed to enclose the area can also be an opportunity for learning, both for visitors and for the people who are using the park on the other side.

Given the diverse history of the people who have settled along the Guadalupe River in the vicinity of the CDM, we decided to incorporate that rich human history as well as the natural world along the river into our exhibit design. The story we wanted to tell was of the historical inhabitants along the river and how they survived by using and interacting with nature. The space would focus on four of the major groups that lived along the river—the Ohlone Indians, the Spanish Missionaries, the Chinese immigrants, and the animals living there before anyone else:



In this document, we provide a summary of the goals we have identified for the space along with an overview of our design process. This paper also outlines our ideas for the four sections, including the history we have based the exhibits on, a description of the exhibit, and how each exhibit

relates to the fence around the area. In addition, each exhibit includes possible assessment tasks to identify the learning taking place.

## Goals

We collected information about this project from the CDM website, documents on previous ideas for the “Back Lot”/“Open Lot,” and conversations with the members of the CDM staff. As a result, we have compiled what we believe are the goals of the space:

- Connect the community to the history of the area, including the importance of the river as a life source for different animals and settlers to the area
- Connect the community to nature through observation and meaningful interactions with it
- Engage children and adults in topics that can be built on in the future
- Offer interactive exhibits that respond to children's diverse educational needs
- Invite self-directed, open-ended exploration
- Inspire wonder and curiosity
- Tell a story through the exhibit
- Create a sunny-day destination
- Attract and accommodate large number of visitors (400,000 annually)

In addition to these overarching goals for the exhibits, there were also a few must-haves for the design of our fence. They are:

- The fence and/or some point of interest in the Open Lot must be visible from the street
- The fence must be a secure boundary to keep the children from getting outside and to prevent outside elements from getting in (e.g. cats and people who have not paid to visit)
- The exhibits and fence should be modular to some extent as individual pieces might need to go through several design iterations

Our goals were also informed by some of the journal papers and books we read this quarter. From research at the Exploratorium, we realized that the entryway to the outside area and the pathway through the exhibits should be clearly marked and visible. Furthermore, partitions and groupings of exhibits on the same topic may also help visitors to make connections between exhibits. After reading the article about the Asia Trails exhibit at the National Zoo, we became interested in the materials that the zoo uses for fencing. Zoo fencing is very secure yet allows for transparency. The CDM has similar

goals for the outdoor exhibit boundary as well. It may be beneficial to look into the materials that the zoo uses for fences in addition to plaques and walkways. Lastly, the article we read on the solitary or shared nature of museum visits encouraged us to include exhibits that allow for multiple users may be engaged at the same time in addition to some exhibits that allow the solitary user to become engaged.

## **Design Process**

Initially, our design task was under-constrained. With the scope and objective of the project not defined, the blank slate was both an opportunity and a challenge as we narrowed our focus to something valuable for us and meaningful to the museum. Initially, we spent a large portion of our time gathering information—through interviews, meetings, conference calls, research, and site visits. After iterations of brainstorming and idea refinement, we focused on a theme and expanded each exhibit idea with specific suggestions including learning assessments. A list from our brainstorming can be found in the appendix.

## **Information Gathering**

### ***Interviews***

We kicked off the project with a conference call with Jenni Martin, Director of Education at the San Jose Children’s Discovery Museum. We were able to get from her the history and background on the project, as well as find out about other people, research, and meetings that we needed to be aware of and could use as valuable resources in our work. We maintained an open dialog with Jenni over the remainder of our project and stayed in close contact via email and a series of follow up calls. We also enjoyed meeting with her personally at the CDM during our site visits.

Per Jenni’s suggestion, we scheduled an additional informational interview with Peggy Monahan, Director of Exhibits at the CDM. She provided valuable insights and context to the project. She also shared with us several of the previous proposals for the outdoor space. This helped us to better understand the progression in thinking that had taken place regarding the Open Lot and the current expectations for it.

### ***Meetings***

During our call with Jenni, we were invited to an “all hands on deck” evening meeting with the museum team as well as a guest, the now notorious “Roach Wrangler,” brought in to stimulate the creative energy in the group. This meeting allowed us to meet other members of the CDM staff and identify what qualities for the outdoor space were important to them.

## Site Visits

There are really two valuable elements that we were able to gain from our site visits. The first was an opportunity to spend time observing and interacting with the exhibits and guests during open hours (during our class visit). We gained valuable insights into how the space is currently used and a more complete picture of the typical visitors. The second element of our site visits that contributed to our final project was our walkthrough of the actual outdoor space. We walked the perimeter, looked at the Guadalupe River itself, and talked through plans for moving what is currently occupying the site.

## Research

Our research consisted primarily of historical research on the Guadalupe River and its history, culture, and inhabitants. We were able to visit the Guadalupe River Parks and Gardens association center and research their library. In particular, the book *Life along the Guadalupe River: an Archeological and Historical Journey* (2002) provided a wealth of information regarding the history and culture of the river and its inhabitants. This knowledge helped us to keep our ideas for themes historically accurate.

## Brainstorming, Idea Generation, and Vetting

We met as a team on a number of occasions to generate as many ideas as we could on several topics. Primarily these included overall themes, potential exhibits, design criteria, possible interactions between the space and the fence, and criteria and ideas for fence construction. We tried to generate as many ideas as possible before organizing them so that we could then begin to evaluate and vet them with the museum staff.

In a phone conversation, we presented Jenni Martin with the best of our ideas for the themes, exhibits, and the fence for her consideration and feedback. Through this process we were able to settle on the theme of the camps of the historical inhabitants. We also decided that our deliverable to her would be to research and flesh out this theme in particular as well as how it might interact with the fence. She also requested that we provide her with a more complete list of all of our ideas regarding the fence.

## Deciding on a Design

The current design for the outdoor space came about through many iterations of brainstorming followed by critical analysis. While we chose to present our ideas for four groups of inhabitants along the Guadalupe River, more iterations of brainstorming and critical analysis may identify a set of exhibits that better meets the goals of the Children's Discovery Museum. The four groups that we chose to

include in our current design best fit the goals of historical accuracy, incorporating the Guadalupe River, and connecting the community to nature. We then brainstormed possible subtopics for each exhibit and sketched how each exhibit might appear. For each exhibit, we also focused on how it met the goals of incorporating learning and assessment in addition to interacting with the fence.

## The Fence

The fence remained one of our principle concerns throughout the project. The need for a secure boundary that feels welcoming in addition to being educational is quite a challenge. While we tried to incorporate the fence into ideas specific for each exhibit, we also came up with general criteria and ideas outlined in the exhibits below. More criteria about the fence are included in Appendix C.

## Exhibits

Each of the four exhibits described here is based on a group of inhabitants who lived along the Guadalupe River. The groups that we chose to include are the past animals, Ohlone Indians, Spanish Missionaries, and Chinese immigrants. While we have presented them here in chronological order of their appearance at the Guadalupe River, we understand that these four groups by no means include all of the groups that have lived in this area.

### Exhibit 1: Past Animals

#### Brief History

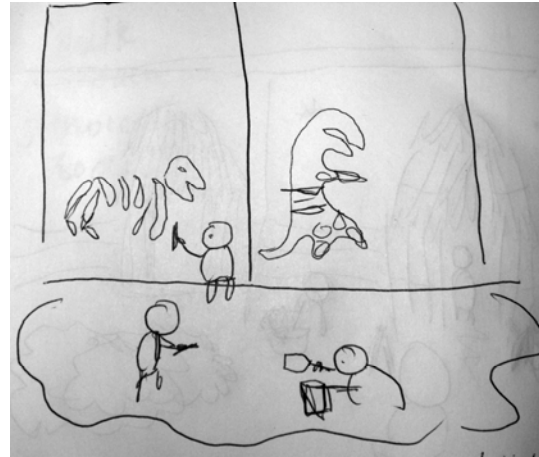
The Bay Area as a whole and the Guadalupe River in particular has been host to a vast array of life for thousands of years. According to *Life along the Guadalupe* (2002), the remains of a wide variety of animals have been recovered from archeological sites along the Guadalupe River. These animals include:

- Grizzly bear
- Black bear
- Tule elk
- Black-tailed deer
- Pronghorn
- Mountain Lion
- Raccoon
- Gray Fox
- Coyote
- Dog/wolf/coyote
- Rabbit
- Jackrabbit
- Bobcat
- Skunk
- Pond turtle
- California sea lion
- Sea otter
- Harbor seal
- Goose
- Duck
- Crane
- Hawk
- Eagle
- Loon
- Pelican
- Western Grebe
- Cormorant
- Mammoth

This amazing history of biodiversity would make a fascinating outdoor exhibit about archeology, types of bones, and the different animals that have lived along the Guadalupe. It would also help bring the new inside mammoth exhibit outside.

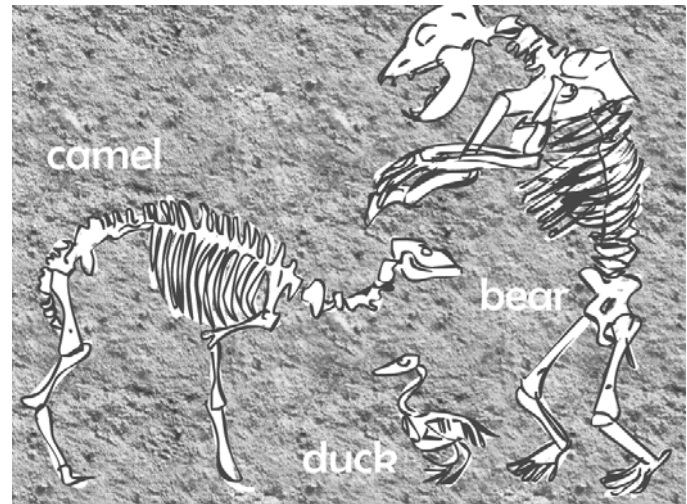
### Description of Exhibit

The proposed archeology exhibit features a large excavation area next to the museum. Pans, shovels, and brushes will be supplied to help the children discover different casts of animal bones. The twins to these bones will be embedded and arranged into skeletons of the animals in the adjacent fence. This way, the children can compare the bones they have discovered with their relative place in the animal. The fence display will also include some information about the animal and the evolutionary purpose of bones.



### How the Fence Fits

The fence plays an integral part in this exhibit. For the people inside, it displays the completed skeletons as well as information about the animals. For those outside, it might show the other halves of the skeletons or display other representations, such as murals, of the biodiversity of the Guadalupe River.



### Assessment

Assessment might include observing whether children try to match the bones they have found with the ones in the fence. Another aspect to observe is whether the children try to assemble the bones themselves. If the fence includes information about the purpose of different types of bones, there might be interviews to see if some of the older children can make inferences about the bones based on their size and shape. Finally, a time on task assessment might help reveal level of interest.



## Exhibit 2: Ohlone

### Brief History

The Ohlone people lived in the Bay Area since about 900 A.D. Their homes, food, and art reflect the beauty and biodiversity of the area. The exhibit will feature a few aspects of Ohlone culture.

### Description of Exhibit

The proposed exhibit explores a few tangible aspects of Ohlone culture. These include their Tule reed huts, the creation of paint from plants using a mortar and pestle, and the harvesting of indigenous plants for food. Tule reed huts

(<http://staff.pausd.org/~bvana/Third%20Grade/OhloneIndians/OhloneReedwoodGrove3.htm>) can be

assembled for kids to explore and play in. The exhibit might also include some partially completed huts that the children can help assemble. The mortar and pestle were important tools to the Ohlone. Kids can use these tools to grind plants and make dye for painting.



We also recommend growing berry bushes in this area. There are a number of berries indigenous to the area, like black berries, that require very little maintenance, but are fun to harvest.

### How the Fence Fits

The fence in this area can incorporate the Tule reed motif from the huts. It might also include a few Plexiglas windows so that children and adults could see outside. Another idea for this section of fence is to have a tinted window with a translucent film showing the river and some of the natural plants that grow in the area.

### Assessment

For this exhibit, asking the children what they learned about the huts and making paints might reveal learning. In addition, observing successful contributions to the huts would indicate that visitors have learned the building process. According to Richard Louv (2005), this building of shelters is invaluable in a child's development.

## Exhibit 3: Spanish Missionaries

### Brief History

La Misión Santa Clara de Thamien was established in 1777. Floods and earthquakes damaged it and forced rebuilding on higher ground. Consequently, the Mission moved several times due to floods



and mosquitoes. Father Junipero Serra, who founded the mission traveled many times to and from California and Mexico. He most likely traveled boat along the coast and then traveled by foot or animal to the mission sites. Additional information may be found by looking at the State of California standards as California students are required to study missions.

### Description of exhibit

A large tower, styled after one of the missions, would allow for a lookout of the river. There may be a section on building materials and how certain materials work better than others for withstanding earthquakes or floods. Taking the floods and earthquakes one step further, there may be a section on natural disasters. There may also be a section on foods that the missionaries ate, incorporating what it takes to have plants grow. Kids can help plant seeds, pull out unwanted plants, and harvest full grown vegetables. There could also be a section on boats and navigation.



### How in the Fence Fits

The tower should be close to the fence in order to allow visitors to view the Guadalupe River. Alternatively, the tower (or towers) could be incorporated into the fence as well. In either case, the outside visibility of the tower might be an inducement for people outside of the museum to come visit it.

## Assessment

Because the subject of this exhibit is tied to a California history education standard, it could be specially designed to highlight aspects of the mission system that are part of the California curriculum. A study could then be set up to determine whether the exhibit impacts children’s performance on the standards test. In the future, it can be built upon and assessed further to help children develop a sophisticated understanding of California history. Another idea for a learning assessment for this exhibit could be to periodically assess the results of the visitors’ garden. Going further, an assessment could be carried out by a survey of the returning visitors to the garden. Questions could include: Do visitors come back and check on the growth of the plants? Have they started gardens for themselves at home?

In addition, we could assess learning by collecting completed navigation worksheets. If the exhibit on navigation were to include a treasure map of sorts that required navigation techniques such as using a compass or a GPS, learning could be observed through successful completion of the task. This assessment could be preformed within the Children’s Discovery Museum and would not require any follow-up with visitors.

## Exhibit 4: Chinese Immigrants

### Brief History

Chinese and Chinese-Americans have had presence in San Jose and the Santa Clara Valley since the early 1850s. The majority were peasants from villages in southern China; single men seeking gold and good wages to send back to China to support their families and villages. Late 19<sup>th</sup> century San Jose’s agricultural and industrial economy relied on Chinese labor. They were widely employed in agriculture, construction, mining, manufacturing and domestic help. After their Chinatown was burnt down in the early 1900s, San Jose’s Chinese population established a new Chinatown on the Guadalupe River. One of the major factories in San Jose—the Chinese Woolen Mills—was also built on the banks of the Guadalupe River.

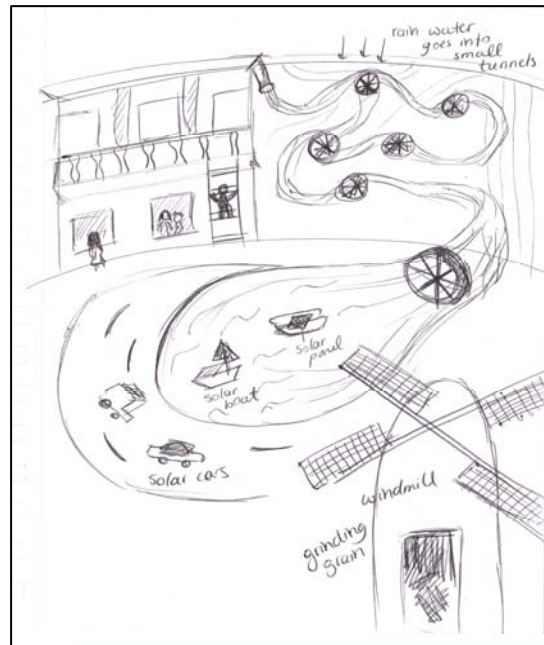


### Description of exhibit

This exhibit is about the history of the early Chinese and Chinese-American settlers in the area as well as about **energy sources in nature**. It features a structure built into the fence shaped like a traditional house that the Chinese immigrants built in San Jose. The structure will be decorated and include bowls and pots and pans for imaginary play. Kids can also climb up to the second floor. From there, they could experiment with a watermill that they control and that generates light to the bulbs in the house. This exhibit will also include experiments with windmills and solar energy. For instance, kids could learn about solar energy by making their own solar-powered cars or solar-powered boats and maybe even have small races on a track or in a water pool.

### How the Fence Fits

We thought that the fence in the Chinese section would bring together the Chinese characteristics with the energy theme. The fence itself is the front of a Chinese house. There would be a ladder going up to the balcony. Thus kids could climb up to the balcony to peek through the windows and see the river. Kids could also paint the walls of the house and add bricks to some parts to learn about the building process. The balcony would be connected to the water mill on one side. On rainy days, rain water could start turning the water mill and rain water could be collected in small tunnels that are in the wall.



### Assessment

In this exhibit, kids would be learning concepts about energy generation, like water energy, solar energy and wind energy. This also has the potential to prepare them for future learning since they will encounter these concepts again in science classes at school. For the water mill, we could assess if they understand that the water mills create energy (lighting the bulbs in the house) by giving out surveys or interviewing the kids. For the solar energy exhibit (kids creating their own solar cars/boats from pieces) the assessment would be observing how kids build the cars/boats. Do they connect the solar panels correctly? How many of the kids actually get their cars/boats working by solar energy?

## Learning and Assessment

### Learning from Nature

One of the main goals of the Children’s Discovery Museum is to provide rich experiences that visitors might not get elsewhere. Many of the community members of San Jose have restricted access to natural settings. In the book *Last Child in the Woods*, Richard Louv speculates that children who are not exposed to natural settings may suffer from “Nature-Deficit Disorder,” that is, kids no longer have personal relationships with nature. While there may not be a clinical problem from a lack of interaction with trees and rocks and dirt, there is evidence that being in nature has its benefits. All of the exhibits described here, by simply being outside will help today’s children to experience more outdoors time and possibly begin developing a relationship with nature.

In addition, many of the exhibits provide non-traditional learning opportunities. The “help build the shelter” exhibits will aid in development of motor skills, cause and effect relationships, and teamwork in addition to providing insight into the purpose of shelter and how each building material helps provide some aspect of that shelter. For instance, reeds might help with waterproofing, while wood provides stability. The “big dig” exhibit also provides valuable learning as visitors may learn about the intricacies of soil. This may also include the different bugs and roots they may uncover or the concept that older items are buried in layers under newer items.

### Learning Assessment

It is important to understand what learning is taking place in order to modify exhibits to maximize learning within the given constraints and exhibit goals. We suggest that the assessment should come in four phases: prototyping, initial review, scheduled intermittent surveys (observation or direct), and direct assessment through use. As the final selections for themes and exhibits are decided upon, these themes and exhibits should be prototyped in an effort to identify any significant glitches. This is also a great way to gauge customer preference and interest.

After the final exhibits have been created, it is important that the museum staff monitor them for a pre-determined amount of time to see how they hold up under significant stress and use. At the same time, the staff may assess learning through personal interviews, observations of visitor interaction with the exhibit, or visitor surveys. Periodic surveys of a similar manner could then be taken at regular intervals to ensure that visitors continue to learn from the exhibits. Some suggestions for ongoing learning assessment include monitoring how much of an input is used, how many questions are

correctly answered at a kiosk, or how much time is spent at a given exhibit. While none of these directly measure what is learned, they may act as an indicator that some learning is occurring.

## Learning Theory

We considered Piaget's theory of cognitive development while thinking about our users. Our target users are 3-10 year old children, so it matches with Piaget's Preoperational Period (years 2-7) and Concrete Operational Period (years 7-11). In the Preoperational Period, children generally need tangible, interactive experiences and do not have refined logical reasoning skills. This user group is satisfied with our hands on exhibits, which give young children the ability to touch and experience. In the Concrete Operational Period, kids have more developed classification and logical skills. The bone matching task at the bone excavation exhibit is right at this level.

Our exhibits in general support Bruner's Discovery Learning. According to Bruner, students are more likely to remember concepts if they discover them on their own. Thus, kids would remember more about solar energy if they have built their own solar cars or would remember more about different ancient animals if they dig up bones on their own. Bruner also believes that Instructional Scaffolding, which includes compelling tasks or resources, promotes learning when concepts are first introduced. In most of our exhibits, we have attempted to design compelling tasks and resources that we think would promote learning. For example, while digging kids have the task of finding a certain animal's bones to make up his whole body.

## Conclusion

In conclusion, we have identified the goals for the outdoor space and recorded our design process. We have presented our ideas for exhibits on the historical inhabitants of the Guadalupe River: Past Animals, Ohlone Indians, Spanish Missionaries, and Chinese immigrants. We delved deeper, incorporating the history of the area in each exhibit and connecting each exhibit to the fence. We have taken care to incorporate learning and ongoing assessment into each exhibit. This project not only outlines our exhibit ideas for the outdoor area, but acknowledges the process that helped develop those ideas. By looking at the whole process instead of simply the final outcome, we provide opportunities to improve upon the ideas presented here, without losing the great deal of thought that went into creating them. The exhibits we chose are examples of exhibits that meet many of the goals that the CDM has for the outdoor space. In addition, the emphasis we placed on learning could also be applied to other exhibits as they go through the creation process.

## Appendix A

### Personas

There are a wide variety of visitors to the CDM—no two are coming from exactly the same context. However, there are a few basic "packages" that would be useful for us to consider as we think about the open lot and the type of people that come to the museum. In this case, we only created one of these personas, but acknowledge that there may be several others:

**Our persona** is actually an entire family. It is the most typical visitor to the museum. We would create other personas to represent other less typical, but key groups that also visit the museum.

Tim, 33, and Angela, 31, live in a small apartment (950 square feet) in San Jose. Tim has just finished his graduate school and/or is just starting his career and is putting in long hours at work on a project team at a local tech company. Angela also has a college degree and is now working part time at a nearby Ronald McDonald House and spends the remainder of her time watching their two children--Aubrey, 6, and Sam, 3.

The family visits the museum together either on weekends, or Angela sometimes takes the kids alone on weekdays. However, now that Aubrey is in school, Angela takes only Sam on those weekdays, and usually brings a stroller to push him around after he gets worn out. The family is more inclined to visit the museum on rainy days or during the winter than during the summer.

Each of the family members has a different motivation as they visit the museum:

Angela takes her kids to the museum to ensure that they learn something and are exposed to such ideas and exhibits at an early age. She has heard that it is good for children's development. She usually plays more of a supervisory role, ensuring that they are not breaking things or hurting themselves while there, and lets the kids explore things at their own pace. She is likely to sit on a bench and chat with other mothers while the kids play and explore nearby.

Tim sees his time at the museum as a chance for him to spend time with his family. His career takes up most of his best hours and he looks forward to his Saturdays and rare holidays where he can spend an outing with his kids. At the museum he tends to look for ways that he can interact with his children while he is there, in particular Aubrey as she is getting old enough to have meaningful conversations with and to enjoy the presence of her father. Tim is more likely to spend time at activities and exhibits at the museum that allow him to then interact with his children--the water area, the tennis ball machine, bubbles.

Aubrey is at an exploratory stage in life. She is discovering and looking to expand upon her learning base. She focuses on these types of activities.

Sam is still relatively young. He has a short attention span and enjoys the tactile exhibits. He is more focused on wonder and awareness of new things than on exploration.

## Scenario: A Day at the Museum

It's 9:30 AM on a Saturday morning in April and Tim, 33, and Angela, 31, are taking their children Audrey, 6, and Sam, 3, to the Children's Discovery Museum in San Jose. Two weeks prior, Audrey's playmate, Tiana had been to the museum with her family and her enthusiasm was contagious. Audrey's pleading convinced her parents that a family outing to the museum was in order. The family had never been before, but had heard good things. Mom and Dad were a bit curious to see how it would be, while both Audrey and Sam were anxious, almost to the point of giddiness, as the family piled into their Subaru Outback Wagon for the 12 minute drive from their apartment in southeast San Jose to the museum.

As the family expedition pulled off the freeway to the museum, Sam noticed the large duck on the roof and squealed (yes squealed!) with delight. His older sister hardly noticed as she was captivated by the large fort tower that was looming over the green belt of trees and the river beyond. She wondered what was inside and if she would get a chance to find out. Tim was busy looking for parking and was finally able to secure one of the last available spots in the back of the parking lot. Angela was thinking through an attack plan for getting from the car to the museum without losing any of the kids, "Wait for me Audrey," she warned as she got out Sam's stroller. With five dollars deposited into the parking meter and the receipt placed on the dash, the embarked on the final approach.

Audrey was still fascinated by the fort and tower that grew closer with each step. She could see through the Plexiglas barrier and the windows in the fort that there were already a dozen or so children in there peering out and engaged in a myriad of activities. She began jumping up and down. It was almost here, "Finally, she thought."

"We aren't buying any toys today," Sam's mother said matter-of-factly, as he and Audrey motioned toward the museum store near the front desk. A short line of about 3 minutes stood between them and the large red fire truck ahead. It was a Saturday in April, a prime time to be visiting the museum and given the full parking lot, Tim knew it might be a bit crowded. He was pleasantly surprised at the speed with which they moved through the line.

The Big Red Fire Truck was worth waiting for. Sam and Audrey loved it, but even Tim and Angela enjoyed climbing on the truck and sitting in the driver's seat. Angela had left the stroller nearby. She wouldn't really be using it until later, when Sam had hit his limit, but in the meantime, it would be nice to have a place to park it. She left it in the area near the restrooms and drinking fountains. From the top of the truck, Audrey once again was captivated by the fort she could see out the full panel windows across the room. She raced down and out through the arched doorway, screaming, "Come on Sam!" Mom and Dad were close behind. Tim noticed that the doorway itself was rather well designed and he paused to consider how the "wall of air" worked and how it kept the AC inside and the heat outside. "Something for another day," he thought as he marched double time to catch Audrey, who was already climbing a ladder to the ramparts of the fort.



Audrey and her father spent the next thirty minutes peering at the river from the top of the fort, looking down on the other children digging and learning, and lashing together logs of their own to make ladders and other structures. Tim really enjoyed the interaction as well as the opportunity to watch his daughter learn. Sam was immediately drawn to the “dig”. Angela was close behind and helped him to find a shovel and allowed him to explore the excavation process, as futile as it seemed for him at times. They didn’t have a yard at home, and she wondered whether it was something her children needed in their lives. Audrey then noticed a growing crowd of people around a fire ring and started climbing down in order to see what all the fuss was about. Tim was right behind her, curious to see how an exhibit on fire was made safe for children. Although, he too was curious about learning how fire worked. He remembered that as a kid he had told himself he was going to figure it out one day, maybe that day was today. Audrey was so excited about learning about fire that she wanted to tell her brother all about it. She tried to drag him away from the dirt pit, but he was too engaged in his dinosaur search that he would not be moved. In fact, Angela got a nice break to sit on the surrounding shaded benches watching Sam dig as he spent two whole hours searching for his buried treasure.

Tim and Audrey came back from exploring the indoor exhibits and Tim said, “Well chap, it’s time to go now. Say goodbye to the new friends you have made.”

“Awww, Dad. Do we really have to go? I didn’t get to play with everything yet!” Sam complained.

“We are going to have to come back here next weekend,” Tim said to Audrey as they realized the great resource the Museum had been.

## Appendix B: Fence Ideas

The fence should keep unwanted things out, like cats and the non-paying public. It should be transparent, enabling the outside public to get a feel of the museum, too. It should also be attractive and have learning value incorporated. We also thought that the fence should have **modular walls**, which allows flexibility according to new exhibits, **writing surfaces** built in such as whiteboard and chalkboard, transparent panels in which kids can make **sand art**, **pin wall**, which allows both the visitors inside and public outside to make shapes, **bulletin boards** where kids can display their artwork, **caves** built into the wall, exhibits inside the wall such as an **ant farm** (or other animal homes) shown as cross sections and **waterfalls** through small tunnels inside the transparent walls. We have also thought about having a fort as the wall with a walkway giving the chance for the kids to climb up by a ladder and view the river. Also, we have thought about having TV screens and interactive parts, storage, shade and seats for the parents to sit and view their kids. We also had the idea of having a hallway inside the fence (in between two walls) creating a shade region for small exhibits.

## Appendix C: List of Other Exhibit Ideas

We fleshed out two main themes for the open are:

- 1) camping history/role play
- 2) exploration/adventure in nature

The exhibit ideas we came up with are as follows:

- Digging for bones
- Bones-identification
- Mud
- Mountain
- Forts / buildings
- Planting / gardening
- Weather: kids get to explore the formation of rain, clouds, snow, fog, temperature, thunder/lightning
- Climbing
- Ropes/pioneering
- GPS orientation / GeoCaching / using compass
- Maps: kids will be given a map and will try to find certain things in certain locations using GPS orientation/compass/maps
- Identification (plants, insects, trees)
- Nature and science: Shadows, rainbows, sky, sun/moon, magnetism, rocks, fire (ways to start)
- Optics
- Energy sources: solar energy (solar cars, boats), windmill
- Microscope play: kids get to examine through the microscope the water that comes in a bucket from the river