



Museum Master Plan

Development Design

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Table of Contents

Nevada Discovery Museum pag	e 3
Introduction to the Master Plan pag	e 4
What is a Children's Museum? pag	e 5
Criteria for Success pag	e 6
Play and Learning pag	e 7
Design Direction pag	e 8
Thematic Framework pag	e 10
Exhibit Descriptions and Illustrations pag	e 13
Lower Level Exhibit Concept Plan First Floor Exhibit Concept Plan Entryway, Curiosities and Small Wonders pag Nevada Stories pag My Town pag Health Care Baby Doll Day Care Kid's Car Care	e 14 e 15 e 23
Build It!pagDa Vinci's CornerpagLittle DiscoveriespagSpace OdysseypagCloud ClimberpagComstock Lode MiningpagUnder the StarspagWaterWorkspagProgram Roomspag	 29 36 47 51 56 59 62 64 70
AppendicesAccessibility in ExhibitspagLiteracy at Nevada Discovery MuseumpagMusical ExperiencespagGender Study of ExhibitspagAge Study of ExhibitspagExhibits and Their Correlationwith Nevada Educational StandardsDesign and Fabrication Guidelinespag	e 73 e 77 e 78 e 79 e 83 e 87 e 103

Nevada Discovery Museum

If a child is to keep alive his inborn sense of wonder..., he needs the companionship of at least one adult who can share it, rediscovering with him the joy, excitement, and mystery of the world we live in. Rachel Carson

The Nevada Discovery Museum has been carefully designed to be a wondering place, a place where imaginations roam freely, test boundaries and soar (and are sometimes carefully reeled back to earth!). It is a *family* place for sharing both educational experiences <u>and</u> joy. Here, visitors of all ages interact with one another, learn with and from each other, try, explore, test, figure out, imagine, laugh, cooperate and play their way to new understandings. Opportunities for learning in novel ways are plentiful. There is a marked sense of fun to the museum, yet it is built on a foundation that makes a solemn commitment to family learning. Through exhibits and programs, museum visitors of all ages experience the joy of learning and the power of play in a beautiful, safe, welcoming environment.

The Nevada Discovery Museum is a not-for-profit educational and cultural resource whose mission is to promote a lifetime of curiosity, creativity and understanding through hands-on exhibits and programs that inspire a sense of wonder in children and their families as they experience the joy of learning together.

Housed in the former Reno City Hall, the Nevada Discovery Museum is at the heart of the city, and is closely tied into the life and spirit of northern Nevada. Exhibit themes and content of the museum are the result of a series of enlivening meetings held with the community in the summer and fall of 2005. Community leaders, educators, artists, philanthropists, grandparents, teachers, parents *and* children came together to share their expectations, possibilities and ideas for a new museum. As a result, the Nevada Discovery Museum is, in every way, a *community* museum, built on the hopes and dreams, commitment and contributions of the community.

The museums' exhibits are carefully designed to nurture children's imaginations, to cultivate their sense of place, to foster their sense of self, build their confidence and competence, and to bolster their understanding that they are capable people with good ideas. Through education and shared experiences, the museum strengthens family bonds, enhances the developmental potential of children and helps build a healthy community.

The museum's exhibits and programs are developmentally appropriate and educationally sound, and also reflect the most current knowledge of the developmental needs of children – physical, cognitive, social, and emotional. Carefully tied to the Nevada Educational Standards, the exhibits provide a rich addition to the formal education offered by public and private schools as well as home-school environments.

The Nevada Discovery museum incorporates the diverse needs of adults into all of its planning, with strategies as simple as providing seating within exhibits and as complex as adult-focused signage and a variety of speakers and programs that help adults enrich their skills in caring for our most important asset: our children.

The museum is a regional resource, serving as a community gathering point for individuals and institutions from all over the region, as well as the many, many tourists who enjoy the area.

The Nevada Discovery Museum is a new museum with a new dream, created by a community who wants the best for the children and families of northern Nevada.

Introduction to the Master Plan

Make not little plans; they have no magic to stir men's blood and probably themselves will not be realized. Make big plans; aim high in hope and work, remembering that a noble, logical diagram once recorded will never die, but long after we are gone will be a living thing, asserting itself with ever-growing insistency. Daniel H. Burnham

This Exhibit Master Plan is a vision - in words and illustrations – of the Nevada Discovery Museum. The exhibits are the outcome of a series of comprehensive and collaborative community meetings held with community leaders, current members and children during the second half of 2005. The meetings captured the community's dreams and aspirations for their children's museum. All those good ideas informed this document, which now serves as the basis for exhibit design, and maps out the museum's commitment to children, families, and the process of learning interactively.

The exhibits described in this Master Plan are based soundly on the principles of child development and both informal and formal educational theories. The Master Plan articulates the themes, goals, and educational value of the proposed exhibits, and directs the integration of the Museum's purposes into design functionality. At the same time as it serves as a blueprint for design, the Master Plan also contains general information for prospective donors, references for grant writing, a roadmap for program planning and an educationally sound outline for launching strong partnerships with schools and other cultural institutions.

The exhibits are designed to meet the developmental needs of children from birth through elementary school age, with supporting activities for visitors of all ages. Imagining, problem solving, discovery, and open-ended exploration are encouraged, and objects and interactive components are presented in meaningful contexts.

Each exhibit in the museum is carefully designed to offer children and their accompanying adults a wide variety of playful learning experiences. It may look like 'just play' to the casual observer, but to the child, play is serious business; it is the way children learn what they need to know in order to take their place as creative, responsible adults in our complex society.

The exhibits are multi-disciplinary in that they integrate information from a variety of formal curricular areas (science, math, social studies, language and cultural arts). In developing the content of the exhibits, careful attention was paid to the Nevada Educational Standards, so that all exhibits are furthering the goals of formal education, in the best informal learning environment possible. In addition, all the exhibit areas actively encourage early literacy experiences by fostering book and print awareness, a sense of story, and the motivation to read in a language-rich environment.

Adult's involvement in their child's learning has been an important consideration in determining exhibits and exhibit content. Elements of intrinsic interest to adults have been included in every environment. By engaging adults at a variety of levels, the museum visit is enriching for everyone. This will be a museum where *everyone* plays – and learns!

Overall, the environment will be both aesthetically pleasing and visually engaging. It will be safe and nurturing, a comfortable space for family learning and togetherness. Diversity is an important ingredient of the museum life, and is reflected throughout the museum. The exhibits, exhibit signage and the environment itself will convey the message that this museum is a place for *all* people.

What is a Children's Museum?

Imagination is more important than knowledge. For while knowledge defines all we currently know and understand, imagination points to all we might yet discover and create Albert Einstein

A traditional museum has a special, almost hallowed, place in a community. It is entrusted by the community to serve as a repository for society's knowledge, culture, and history. In a very real way, a traditional museum preserves the past.

A children's museum is about the future. When a community makes the bold commitment to create a children's museum, they are opening their hands to hold and nurture their future: those future leaders, dreamers, scientists, farmers, artists, teachers, and helpers who are today's children. A children's museum thus becomes a place of possibilities and promise, the very heart of a community.

A children's museum is about children and learning. It is a family place where children and adults learn about themselves, each other, and the world they live in through exploration, interaction, role-play, and direct experience. Visitors of all ages lean on and learn from one another's experience, talents, and expertise. A children's museum presents exhibits, activities, and programs that provide opportunities for visitors to expand their learning, and link their existing knowledge with new experiences.

A children's museum considers the whole child with exhibits and programs that foster growth in physical, intellectual, social, emotional, and interpersonal skills. As children explore, create, and succeed, they gain competence, and take their new strengths and sense of self into the community.

A children's museum is a partner in the learning continuum. Though its informal teaching methods are vastly different from the formal educational methods used in schools, it is a center of learning. The new Nevada Discovery Museum will compliment the educational system of the region, and will help interpret and extend the state of Nevada Educational Standards.

The adult museum visitor plays a critical role in enhancing learning and play. Well-designed exhibits invite adults to become active partners in the museum experience. Adults encourage children when they encounter problems, make suggestions for new scripts or plans when the child has exhausted his repertoire, join the child as a playmate, observe the child in play, and talk about what the child has done. Adult-child interaction enriches the experience for both, and helps build strong emotional bonds. A children's museum is a resource for parents and caregivers and can serve as a wonderful meeting place for young and old alike.

Children's museums break the museum mold. They are not places where people are engaged in quiet, careful contemplation. Rather, they're a bit noisy with the happy hum of learning, a place where children of all ethnicities, social groups, cultures, and religions come together and learn about and from one another. Children's museums are places that work with and for schools, where ideas and influences flow in both directions. They are places to learn and to teach, to be surprised, and to understand. They are comfortable, safe, funny and full of opportunity.

Perhaps most importantly, a children's museum is a place that a community can be proud of because they helped build it, they helped shape its content, and all share the feeling that they have done the very best for their children.

Criteria For Success

Never doubt that a small, group of thoughtful, committed citizens can change the world. Indeed, it is the only thing that ever has.

Margaret Mead

In the course of planning the exhibits for the Nevada Discovery Museum, many factors have been taken into consideration. What is the target age group? What are the learning possibilities? How can all visitors be made to feel comfortable, and welcome? Is there a balance of activities meeting the needs of visitors who learn in diverse ways? Is there enough to do? Is there too much to do? Are the exhibits meeting the needs of the community?

At the master planning stage, anything is possible. Everything is considered, carefully.

But a museum is more than its master plan. It takes on its own life, and becomes part of the culture of its community. To be successful, it must meet the needs, aspirations, hopes and dreams of its community. Yet how is that success measured? There are concrete parameters that indicate success: attendance figures and financial statements are easy to tally. What are the other elements that constitute a measurement of success? Each community is different, and each community defines success differently.

As part of the master planning process, the exhibit design team held a number of open community forums in which participants were invited to give their input on how to determine the overall success of the Museum. In many ways, these criteria go far beyond budget bottom line and in a real sense begin to define the community's spirit. From the responses to the question 'how do we measure success?' the community defined success as a museum that is:

•a place where kids and parents want to go again and again

•a museum where lower income children and families are as represented as are upper income children and families

•fully integrated with the school system; a place where every student in the county comes for field trips

- •financially supported to both maintain and grow
- •an attraction for the many tourists to the area
- •dynamic with change, yet keeps favorite exhibits
- •active with classes and programs
- •nationally ranked as one of the best children's museums in the country
- •a fun, noisy, happy place for play and learning
- •welcoming to everyone, regardless of culture, race, social status or ethnicity

In the community's own words, the Nevada Discovery Museum will be a success if "it has become a place to gather for fun experiences; a place to go to explore and enjoy yourself with others"; if "it touches the lives of many young children who have a rich experience in this great house", if "kids have a sense of achievement and optimism about their future"; if "schools will bring children to the museum and then children will return with their parents"; if "people from other states hear about the fabulous place and make a point to visit."

And, finally, "we will be successful if we will have exhibits that tantalize the children's curiosity and provide some answers to questions they may have about themselves, their community and the world they live in."

Play and Learning

Piloting on the Mississippi River was not work to me; it was play--delightful play, vigorous play, adventurous play-and I loved it . . .

Mark Twain

As children play, they learn. It is as simple as that. When you see a child playing, you are watching a learning process. It may look like 'just play', but the evidence is strongly irrefutable that children are learning as they play. Whether they are learning to move and control their bodies more smoothly, to think through a problem at a new level of understanding, to use their language skills more effectively or increasing their abilities to get along with others, children are learning through play.

In play there is little distinction between working and playing. It is often stated that play is a child's work, although this doesn't mean work in the academic or traditional sense. Rather, a child fully engrossed in play is absorbed in a joyful engagement and experimentation with the world.

A children's museum is full of examples of children busily engaged in learning-filled play: children figuring out how this works and what can be done with that; learning what they can do with all those pieces; children playing alone and children playing together; children negotiating and sharing roles and spare parts with others; children alight with feelings of competence and confidence: children learning.

In a children's museum, carefully designed environments inspire children's learning. The exhibit environment is created from three strands, tightly knit together: an appreciation of children's play behavior, a knowledge of how an environment can influence play and learning, and an understanding of children's developmental milestones. These three threads transform the learning landscape so that serious learning looks like play... for those who know how to look.

Although it seems like the antithesis of learning, the very highest form of play invites and involves imagination. Whether it is one child pretending to drive the steer a Spanish galleon or a group of children imagining that they are on an exploratory expedition to another planet, imagination play experiences give children exceptionally strong feelings of competence and confidence. The more we can offer children the experience of feeling in control, of being powerful, the more self-confident they will be. The richer their imagination, the better they will become at real-life problem solving. Imagination play isn't real, but the feelings it engenders are strong and long lasting. It isn't real, but it is true.

The most important gift we can give our children is a good imagination. We are handing them an increasingly complex world, with problems that we can hardly envisage that will be theirs to solve. They will need good imaginations to take their place as capable, caring adults. As with any other skill, imagination grows with exercise and experience.

Play is vitally necessary to a child's healthy and full development. Children's museums provide a safe harbor in a scary, busy, and complicated world. They offer children the gift of playing freely in an inviting and complex environment and of playing with new things and people in time-tested ways. These positive play experiences are changing children's lives, not merely by what they learn during a museum visit, but by helping them believe in their own powers to learn, to succeed, to make their own choices, to get along with other people, to make their own discoveries, and to know that they are interesting people with good ideas.

Design Direction

Always design a thing by considering it in its next larger context - a chair in a room, a room in a house, a house in an environment, an environment in a city plan. Eliel Saarinen

Children use their senses to explore and learn from their environment. They approach exhibits ready to engage different learning modalities. Color, form, line, texture, sound, scent, pattern, and light create a beautiful space that delights the eyes and stimulates the senses and at the same time

The environment at the Nevada Discovery Museum provides the inspiration, motivation, framework, and materials for learning. A sense of whimsy, humor and joyful fun present throughout the visitor's experience conveys the pleasure of hands-on exploration, investigation, discovery, and learning.

The following design considerations optimize visitor experiences.

gives a feeling of nurture and well-being, creativity and delight.

•Scale

A child-scaled environment sends the message "I fit here! Things are my size!" Imagination takes flight within the feeling of security thus engendered, allowing bounds of reality to loosen and creating a sense of happy anticipation and openness to learning.

•Color, Texture, Acoustics, and Lighting

The Nevada Discovery Museum uses a combination of both soft and saturated hues to create an interesting and appealing palette. A huge variety of tactile materials build sensory exploration into the environment itself.

Although the happy sounds of children learning and playing may be viewed as a measure of success, noise feeds on noise and can become counterproductive to play and interaction. Attention has been paid to strategies that reduce ambient noise.

Because the Nevada Discovery Museum is dependent on a combination of natural and artificial lighting, careful consideration is given to providing well-balanced illumination using a natural spectrum, which is bright but not harsh. Subdued lighting is used effectively, particularly in areas that are for quiet engagement.

Beautiful colors, interesting textures, subdued sounds, and controlled lighting all have a calming influence. When children feel secure in a calm environment, they interact more thoughtfully.

•Exhibitry

Educational foundation - Every exhibit element is educational, contributing to the total learning experience.

Interactive - All exhibits are interactive. Some will totally immerse visitors in a new world; others will be engaging by inviting the body and mind to, for example, turn a crank to make something happen; and within most exhibits there is visual interaction, where visitors learn about a topic in subtle ways - perhaps through seeing a scene through a window, or gaining information from an explanatory label. The general rule of thumb of interactivity is that *simple is complex*: often, it is the simplest materials and the least-

complicated user-interfaces that are most compelling because they require visitors to utilize their own power and imaginations to guide their learning.

Intuitive - Visitors should be able to understand intuitively how to use an exhibit element. For the most part, complicated 'how to' labels are unnecessary on a well-designed exhibit component. Rule of thumb: if it <u>needs</u> a sign, redesign!

Broadly appealing - Because the museum serves a broad range of ages and abilities, exhibit elements are designed to appeal to both older and younger children; in some cases there are parallel exhibit experiences to meet the very different needs of, for example, a toddler and an 8 year old.

Accessible - Children of all abilities are happily at home in the museum. Good design finds ways to accommodate all visitors, whether children with disabilities, the elderly, parents pushing stroller or carrying a baby, or people who are temporarily handicapped by an injury.

•Literacy

One of the greatest focuses in education on both the state and national level is early literacy. All the exhibit areas actively encourage early literacy experiences by fostering book and print awareness, a sense of story, and the motivation to read in a language-rich environment. Every exhibit area includes an area with books and comfortable seating.

Local Identity

The children's museum is firmly rooted in the local area. The museum's exhibits and programs will explore many of the features of Reno, Nevada and its region: its rich heritage, industry, geographical features, historical, and cultural elements. Paying a visit to the Nevada Discovery Museum will foster an awareness of and appreciation for the here and now - and at the same time it expands the visitor's worldview and horizons.

Thematic Framework

First comes thought; then organization of that thought into ideas and plans; then transformation of those plans into reality. The beginning, as you will observe, is in your imagination. Napoleon Hill

Children learn about themselves, others, and the world around them in arcs that radiate outwards, with their Selves at the center. Until they know something of their Self, they aren't yet ready to learn about their community. Once they know about their community and context, they are free to explore and understand the wider world.

The exhibits of the Nevada Discovery Museum will reflect this continuous shift of focus. Within each gallery, exhibit content and experiences address these fundamental developmental imperatives.

Me: empowerment – feeling strong and capable; self-discovery and awareness; imagination play – feeling powerful in the world of pretend, trying on other roles; assuming responsibility for self or others.

My community: My family and friends: people I know very well and people I hardly know at all, but would like to; incorporates the child's growing ability to act as part of a group; communication; local history – how it was then, compared to how it is now.

My World: Where do I live? What is this place? Natural world: seasons, weather, water, wildlife; what are our resources: how can we live *with* the world? Many cultures: similarities and differences with other lives and life-styles; maps and distances; music from all over; art, too.

	Nevada Stories
Me	Engage in role-play – pretend, imagine, talk, communicate, narrate your story.
	Realize that we do things differently than they were done in the past.
My Community	Investigate how we were and how we are. Celebrate the roots of the community.
My World	Begin to understand that there is a past; that there were people, things and other ways of doing things in other times – start to realize that there is a <i>now</i> and a <i>then</i> . Explore some of the other cultures that have lived in the region, look at globe.
	My Town
Me	My Town Who am I here? What can I do? Who can I become? Make up scripts, pretend, cooperate and communicate; learn about yourself and others. Kids make it happen in this town! It isn't real but the feelings are true: I'm a capable person.
Me My Community	My TownWho am I here? What can I do? Who can I become? Make up scripts, pretend, cooperate and communicate; learn about yourself and others. Kids make it happen in this town! It isn't real but the feelings are true: I'm a capable person.As imaginings are played out, realize that you're part of a community; you work with others to make things happen. Commerce and caring, helping and sharing.

	11
	Build It!
Me	Use fine and gross motor skills to build; express self in building; experience own
	creativity as one builds; investigate and make discoveries about renewable resources;
	take on roles in play
My Community	Cooperate with others while working together to build on both large and small scale;
	share materials and equipment; fire station connection with emergency services and
	community health providers
My World	Discover wind, sun, and geothermal resources; explore green building materials; investigate how renewable resources helps the world; look at world homes.
	Da Vinci's Corner
Me	Enjoy self-expression and its attendant feelings of capability and power; examine,
	explore, discover self; through arts, experience one's own individuality, self-
	expression, and ability to communicate.
My Community	Work communally; become a community; appreciate other people's beautiful work
	and contribute some of your own. Enjoy and learn from local and regional 'artists in
	residence'.
My World	Visual art pieces from all over the world will be displayed in the studio; various
	world art' (such as fish printing) will be utilized in studio; world musical
	Little Discoveries
NIE	I ry new things; feel capable: crawl, climb, stand, roll, slide, manipulate, listen,
My Community	babble, talk, notice, try, do, and reel.
Wry Community	about ownership (I see it. I like it. it's minel) at very basic level
My World	Experience the sensory phenomena of the world such as rough/smooth: hot/cold:
	gravity; object permanence; cause/effect.
	Space Odvssev
Me	Experience sensory input; make choices; create and take on fantasy role(s) for self;
	employ social, cognitive and language skills
My Community	Interact with other children; communicate ideas to others; engage in 'co-imaginings'
	with others; take on new perspectives.
My World	Space exploration is real, but this is pretend. We are part of a real solar system with
	planets that are really different than oursand there are unlimited numbers of
	imaginary planets, too!
	Cloud Climber
Me	Exercise physical coordination; plan a route; take risks; take responsibility for
	oneself; feel adventurous; feel safe. Feel daring and competent. Imagine variety of
Max Communitar	scenarios and roles.
My Community	others have rights too. Cooperate negotiate lead and follow. Communicate in a
	variety of ways including speaking tubes telephones and of course voice!
My World	Use the climber to investigate overlook and understand the museum world: draw
,	map of this world
	Comstock Lode Mining
Me	So much to see and feel! Lots to do, too – real work, sometimes heavy. Measure,
	compare, work; push, pull, weigh, stack; pretend, play. I can do it!
My Community	This is a real part of the real Nevada! Amazing! Plan, imagine, work, play with
	other visitors; communication is so important!

My World	Whoever thought that there was all this world underneath my feet? Our state - our
	world - is a rich and amazing place! There's the world up on top, and the world
	underneath. Rocks and minerals and metals, each with their own characteristics.

	Under the Stars
Me	Play under the stars! Snuggle up in a tent, pretend to sleep, cook, and build. I can
	make it all happen.
My Community	We have to work together to make this shelter, don't we? Sharing, talking things
	through, figuring out who gets to do what part. Lots of room for everyone to have a
	role and be part of the game.
My World	Explore elements of the natural world. What's that I hear? What makes that sound?
	Is it real?

	WaterWorks
Me	Use body to interact with and interpret environment; utilize fine and gross motor
	skills; have sensory experience.
My Community	Share materials with others; learn about the need to share water resources in the real
	world.
My World	Explore and discover local water sources; the plants, animals, sights, sounds, and
	smells of the region; learn about the water cycle.

Exhibit Descriptions



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Center Street Elevation





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Lower Level Exhibit Plan

Mary Sinker





Center Street

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First Floor Exhibit Plan



Entryway, Curiosities and Small Wonders

I think, at a child's birth, if a mother could ask a fairy godmother to endow it with the most useful gift, that gift would be curiosity. Eleanor Roosevelt

Rationale

A great children's museum provides opportunities for visitors to engage their natural curiosity, make discoveries and experience wonder – everywhere: the entryway, hallways, walls, underneaths and overheads – everywhere offers education, fun and delight. Learning isn't imposed, but rather is almost breathed in, a part of the very atmosphere of the museum life.

The *Entryway* welcomes every visitor and sets the tone for the entire museum visit. The mere act of entering the museum offers a preview of the excitement, education, engagement, and adventure that awaits. Visitors' hands, minds, and hearts are invited to come in and join the fun of learning and being together. The *Entryway* also serves to highlight the museum's role as a community connector as individuals, corporations and foundations are acknowledged and showcased in recognition of their contributions to the community and to the museum.

Curiosities and Small Wonders will be found absolutely all over the museum. From the moment visitors walk into the museum, ranging from fleeting little encounters to more lengthy explorations, the idea is that every available nook and cranny in the *Nevada Discovery Museum* will be put to good use. Here, visitors can arrange and rearrange parts of the world – and their connections – in many ways.

Description

The *Entryway* sets the tone for the *Nevada Discovery Museum* as it welcomes every visitor and invites them to begin exploring. From the moment they enter the museum, visitors begin experimenting, learning, creating, exploring, and making connections. Rising hot air balloons, burbling water, an interactive donor wall and other small surprises offer a preview of the fun-filled learning that awaits.

Once inside the museum, here, there and everywhere are the locations of *Curiosities and Small Wonders*... in the walls, under windows, overhead on ceilings; in hallways, on floors and on doors. In this way, the whole museum becomes alive with learning possibilities.

Some experiences will be light-hearted, even giggly; others will be quiet and soothing, even still. A place for thoughtful repose might be found over there, while an area humming with commotion might be over here. Something might be simple like an infinity mirror; something might be complex like rising hot-air balloons. It is the combination of the unexpected that is so charming and entirely engaging.

Curiosities and Small Wonders will evolve over time and might include elements as diverse as a walk-through dream catcher; sound tubes to talk from area to area; video phones to visit with other people within the museum; pneumatic tubes to send messages from one area to another; visitor recognition (student-of-the-month; grandmother-of-the-month); voting on unusual things (do you like Raisin Bran or Cheerios better?); a sky theater where one can lay on the floor and look up at clouds skidding by, or perhaps stars; a xylopipe baluster; a musical instrument petting zoo. The curiosities will be memorable, special and unique.

Nevada Stories

If history were taught in the form of stories, it would never be forgotten. Rudyard Kipling

Rationale

Studying the 'olden days' provides children with opportunities to expand their own sense of who they are, introduces them to the lives and lifestyles of people in the past, and helps them explore the similarities and differences between lives today and long-ago.

The enjoyable aspects of learning history can be augmented with an opportunity to engage in activities and experience history as a story well told. History is part of our everyday lives and is hands-on work. Learning history and culture is best done in the same way we study a new language, or play baseball: we do it as well as read about it. *Nevada Stories* offers a variety of participatory activities that offer visitors the opportunity to take part in and experience the amazing history of Nevada, learning about the experiences of people in the past, developing respect for and tolerance of other people and cultures, and thinking about how the past and the present are strongly linked.

Goals

•To present milestones in the history of the state of Nevada with the purpose of helping visitors gain a real sense of history: an understanding of how things *were* in order to gain perspective on how things *are*.

•To provide environments, props and story lines so that visitors can enact history as a story

Learning Opportunities

Through play in the exhibit components and associated activities, children will:

•relate to history as a story that really happened

•contrast Nevada then with Nevada now

•discover some of the important historic elements of their community

Description

Nevada's rich history of exploration, discovery, and dramatic growth has been due to the strength and stamina of the diverse and adventurous people who have inhabited this land of rugged mountains and valleys, of hot, dry deserts; pine and aspen forests; cold alpine lakes; and alkali flats left by desert lakes that dried out long ago. *Nevada Stories* invites visitors to explore the tales of some of these people.

From the moment visitors step into *Nevada Stories*, they begin participating in Nevada history. Taking on roles, inventing scripts, playing out pieces of history both known and new, here visitors *experience* the history of our unique state. Whether digging for historical artifacts, building a Paiute house, provisioning a wagon, building the transcontinental railway, riding on the Pony Express, or working in a modern-day café, *Nevada Stories* helps visitors learn about history by doing it.

Archeological dig: Nevada's history goes back into prehistory. Visitors use brushes, scraping tools, and small hand trowels to carefully dig in an accessible, enclosed digbox filled with wax sand to discover permanently fixed relics from the past. These items include not only fossils, but also more familiar objects such as a railroad spike, a miner's lamp, a Conestoga wagon wheel, a

Native American pot, shiny pieces of gold, a leather boot, a metal coffee pot, a miner's pick, and many other items that represent various historical times and events. As with a real archaeological dig, the objects will be revealed over time, each visitor revealing a bit more of an object until finally the objects are revealed and museum staff 'reburies' them (recasting the wax sand). Thus there is a strong element of change over time – and the appeal of participating in an ongoing project...and mystery! What ARE all these things?

Native Paiute population, Then and Now: Arrowheads embedded into the ground, ancient petroglyph drawings carved into the golden sandstone rocks, and pictographs drawn onto a recessed section of the rocks can be discovered near a conical, rush mat dwelling, called a *kanee*, typical of those lived in by nomadic Native Americans called Paiute, who have lived in the Pyramid Lake region for 10,000 years. A math interactive on the wall helps visitors determine how many generations of people there are in 10,000 years. A lazy long-nosed leopard lizard can be spotted sunning itself on a rock nearby as a desert tortoise takes a peak from behind another rock. Visitors can build another rush mat dwelling by placing bark, reeds, and woven mats onto a bent pole frame. Photographs of beautiful baskets woven and used by the Paiute people are displayed near mounted baskets that can be woven by visitors using a variety of natural materials. A grinding stone and bowl can be used to grind dried posole corn. Visitors can hang fish for drying onto frames made from sturdy sunflower stems. A cradle board for a boy and a cradle board for a girl (the pattern on the cradle board symbolizes whether it's for a boy or a girl) – are complete with beautiful baby dolls. The cradle boards can be tried on, and carefully handled.

In contrast to the long-ago Paiute way of life, the modern population is also represented. A large photograph of the very-modern Pyramid Lake Junior/Senior High School serves as a backdrop to a display and interactive about the Paiute language. This language was exclusively an oral language for millennia, but since 1997 it has been written, too. Now, Paiute is taught from Head Start through high school. A large, interactive book with original illustrations tells the Paiute story of the "Skunk and Raccoon" in Paiute, English, and Spanish. A skunk and a raccoon puppet can be used to enhance the story telling.

Westward expansion: In the 1840s, many people began to move westward to Nevada and California. A large Conestoga wagon sits flush to the floor, making it accessible to all. Visitors are invited to prepare for their trip to Nevada and beyond. They gather food supplies that they will need for their long, difficult journey and load these into the wagon, including bags of dried beans and rice, dried fruit, flour and sugar, potatoes and apples in baskets, sacks, and wooden boxes. The nearby trading post provides the opportunity to provision for other necessities such as blankets, clothing, boots, tools, metal cookware, dishes, and utensils, buckets, and other important items. A wooden bench in front of the trading post offers a place to take a rest. A campsite near the wagon provides a place for the travelers to rest and use their cookware, utensils, and food supplies to cook over a campfire, complete with faux silk flames. An old, wooden barrel, split vertically has a shelf built that holds books about the western expansion of the United States and pioneers. Pieces of logs around the campfire offer a comfortable place to pretend to enjoy a camp side meal or look at a book. Similar to the "Oregon Trail" computer software program, a computer interactive next to the Conestoga wagon asks visitors to plan a trip for their family across Nevada, choose the types and quantities of supplies they will take along, and see how successful they will be in reaching their desired destination.

Geology and Comstock Lode Mining: (the mining area is described in more detail in its own section) In 1859, vast deposits of gold and silver were discovered in Nevada. Today, mining continues to be an important industry and makes Nevada the leading producer of gold and silver in the United States. Here, visitors put on safety helmets with working spotlights, jumpsuits, work gloves, tool belts, and safety goggles and push a mining cart into a small mine to discover rocks, minerals, and even a few fossils that are in the soil. Once the cart is filled, young miners can empty their cart onto a table and sort and classify the different rocks by size, color, and type. Visitors are invited to bring a rock from home and trade it for another at the mine's trading post. A matching-game invites visitors to learn the names of some 'native' rocks and find the one that plays rock music!

Next to the mine entrance is a small open area that is framed to look like a miner's home, perfect for puppet shows, storytellers, sing-alongs, and other performances. Wooden benches ringing this area provide comfortable seating for all.

Pony Express: As the population grew on the west coast, there was a need to transport mail and other documents nearly 2,000 miles between St. Joseph, Missouri and San Francisco, California. In 1860, riders as young as 14 years old and no older than 18 joined the Pony Express and raced across that distance under harsh and dangerous conditions in as little as 10 days. The route they took, called the Simpson Route, crossed Nevada. A map of Nevada shows all of the Pony Express Stations where riders could take a rest, change horses, and grab additional mail. Younger visitors can put on riding chaps and load up a mail sack. A horse riding interactive allows visitors to sit in a real leather saddle and see the rider's view of the passing scenery while riding at such a fast pace, shown on an adjacent monitor. A full-size fiberglass horse and mustang invite visitors to see how tall these horses are as well as compare their height to that of the horses. A bilingual wall display on how horses are measured in "hands" provides additional information. Two, low pommel ponies with real manes, tails, and leather saddles can be sat on and "ridden" by even the youngest of visitors.

Transcontinental Railway: The transcontinental railroad crossed Nevada in 1868 on its way to being completed in 1869 making train travel from coast to coast possible. A large, old-fashioned, accessible locomotive invites visitors to load wood into the furnace and pull the cord to sound the whistle. A monitor in the front window of the locomotive shows the engineer's view of the track as the train barrels along. The passenger car has room for seating and a storage area for visitors to stow old-fashioned suitcases and trunks. A small bookshelf next to the seating holds books about the Pony Express, the railroad, and other Wild West adventures. On the wall of the passenger car is a map of Nevada showing the various towns along the route. Many people worked long and hard to build the train tracks across the United States. Visitors use large, notched wooden slats as railroad ties that lie across and fit into a track and help build the train track. A small, accessible train table with interlocking tracks, train cars, and other props provides the opportunity for train play on a smaller scale.

Our World Café: Nevada is the home to many different cultural groups in addition to the Paiute Native Americans. An interactive wall map of the world and bilingual chart shows where the different groups originated and why they moved to Nevada. When a button for a cultural group is pressed, the country of origin lights up. These groups include Irish, Cornish, Slavs, and Greeks who worked in the mines, Italians and Swiss who established ranches and dairies, French

Canadians who worked as lumberjacks, Germans who farmed the land, Chinese who worked on the railroad and in the mines, Basques and Scots who herded sheep. Most recently, immigrants have come to Nevada from Mexico and Southeast Asia. All of these cultural groups and their characteristic foods are featured in the *Our World Café*. At the front entrance of the café is a large globe. When a country on the globe is touched, a child's voice says "Welcome" in that country's language. The walls of this café are covered with photographs of the native countries of many of these groups. Visitors sit on stools at small round tables and can be diners, put on a chef's apron and cook a meal, or take a tray and dishes and serve imaginary culinary delights.

Bristlecone Tree: The bristlecone tree is the world's oldest tree and may be the world's oldest living organism, and stands bent and gnarled at the center of *Nevada Stories*. These trees have been found to live to be well over 4,000-5,000 year old, even in the most adverse conditions. An interactive provides information about tree rings and how the age of a tree is determined. The museum's magnificent bristlecone tree, with bench seating all around it, provides a central location for visitors to *Nevada Stories* to take a rest, rendezvous with family and friends, and drink in the beautiful environments of the exhibits. Adults accompanying children who are particularly engrossed in an area my welcome a place to sit where they can still keep an eye on their busy children!

Wall Mural: Unifying the space and providing context for each area, a beautiful wall mural stretches around the area and sets the scene as it depicts Nevada's dramatic terrain and clear, blue skies. Flocks of sheep can be seen grazing in the distance.

Recorded History: Throughout *Nevada Stories,* visitors will come upon proximity switches that light up interesting historical facts, labeled photographs of historical scenes and people and other historical artifacts that may be examined closely. These elements reflect the food, clothing, types of transportation, livelihoods, and use of technology of Nevada over the years.

Nevada map: Across from the entrance of Nevada Stories is a large map that shows the state of Nevada with its mountain ranges, bodies of water, and major cites.

How Visitors Ma	ay Use <i>Nevada Stor</i>	ries		
Age 0-2 Years Sensory exploring	Age 3-5 Years Problem solving	Age 6-8 Years Inquiring and experimenting	Age 9-12 Years Interpreting and understanding	Adults Partners in play
•look at wall mural C,S	•look at wall mural C,F,S	•look at wall mural and notice familiar Nevada sights C,F,S,SE	•look at wall mural and recognize Nevada scenery C,F,S,SE	•look at wall mural; recognize familiar Nevada scenery
•explore in digbox with hands F,G,S	•explore in digbox using hands, brushes, hand trowels; find objects C,F,G,S,SE	•locate objects in digbox using tools; identify objects; reflect on historical significance of objects C,F,G,L,S,SE	•locate objects in digbox using tools; identify objects; reflect on historical significance of objects C,F,G,L,S,SE	•reflect on historical significance of objects found in digbox
•look at Native population area S	•look at Native population area; notice items throughout area; interact with props and activities C,S,SE	•look at Native population area; recognize items throughout area; use props; participate in activities C,S,SE	•look at Native population area; recognize significance of items throughout area to Pauite people; use props; participate in activities C,S,SE	•recognize significance of items and relationship to Pauite people
•look at petroglyph and pictograph drawings and touch rock C,F,S	•look at petroglyph, pictograph and arrowhead C,F,S	• look at petroglyph, pictograph and arrowhead; recognize these as being artifacts from ancient people C,L,S,SE	• look at petroglyph, pictograph and arrowhead; know these are artifacts from ancient people C,L,S,SE	•look at pertroglyph, pictograph and arrowhead
•touch lizard and tortoise F,S	•touch lizard and tortoise F,S	•recognize lizard and tortoise as native animals C,S,SE	• recognize and lizard and tortoise as native animals; know names of these animals C,S,SE	•look at lizard and tortoise
•crawl into hut G,S	•crawl into hut C,G,S,SE	•notice structural intricacies of hut; go into hut C,G,S,SE	•notice how huts are built; go into hut C,G,S,SE	•look at hut construction
•touch bark, reeds and mats S	•use bark, reeds, mats and attempt to build hut C,F,G,S,SE	•try to build hut with available natural materials C,F,G,S,SE	•build hut with available natural materials C,F,G,S,SE	•look at building materials made of natural materials
•lift grinding stone G	•rub grinding stone in stone bowl C,G,S	•use grinding stone in stone bowl to grind corn C,F,G,S,SE	•recognize grinding stone; use grinding stone; understand how ground up items were used as food C,F,G,S,SE	•use grinding stone in stone bowl to grind corn when available
•look at dried fish S	•put fish on drying rack C,F,L,S,SE	•notice how fish are dried on drying rack; notice drying rack C,F,L,S,SE	•notice construction of drying rack; realize importance of drying C,L,S,SE	•notice how drying racks are constructed

<u>Cognitive = C:</u> Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity <u>Fine Motor = F:</u> Using hands and fingers, eye-hand coordination <u>Gross Motor = G:</u> Using arms and shoulders, legs and feet <u>Language/Literacy = L:</u> Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers <u>Sensorial = S:</u> Touching, tasting, smelling, hearing, looking <u>Social-Dramatice = SD</u>: Role-play, imagination, drama

Social Emotional = SE: Self-concept, independence, interdependence, relationships, turn-taking, sharing, negotiating, leading, following, understanding of diversit

How Visitors Ma	y Use <i>Nevada Stor</i>	ries, continued		
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Sensorv	Problem	Inquiring and	Interpreting and	Partners in
exploring	solving	experimenting	understanding	play
•touch cradle	•put baby dolls into	•carry baby dolls on	•carry baby dolls on	•examine cradle
boards; hold and	cradle boards; carry	back in cradle boards;	back in cradle boards;	boards
carry baby dolls	dolls in cradle	notice how cradle	notice how cradle	
C,F,G,S	boards	boards are different	boards are different	
	C,F,G,L,S,SD,SE	than Western cradles	than Western cradles;	
		C,F,G,L,S,SD,SE	help younger children	
			put on cradle boards	
	lash at hashe lister	ala ala at ha ala. Listan ta	C,F,G,L,S,SD,SE	alistan ta stamain 2
•100k at large book,	•100K at book, listen	•100K at book, listell to	•IOOK at DOOK, listen to	•Instell to story in 5
CLS	languages: use	notice unique aspects	notice unique aspects of	languages
С,Е,Б	nunnets	of Pauite: use puppets	Pauite: use puppets to	
	C F L S SD SE	to embellish story	embellish story for	
	0,1,2,0,02,02	C,F,L,S,SD,SE	vounger children	
			C,F,L,S,SD,SE	
•attempt to climb	•climb onto	•climb onto accessible	•enter and imagine	•climb into
onto accessible	accessible	Conestoga wagon;	traveling by Conestoga	Conestoga wagon
Conestoga wagon	Conestoga wagon;	pretend to ride and	wagon during the mid-	
with assistance G,S	pretend to ride	drive wagon	late 1800s	
	C,G,S,L,SD,SE	C,G,S,L,SD,SE	C,F,S,L,SD,SE	
•touch supplies for	•load supplies into	•choose supplies with	•know value and	•participate in
Conestoga wagon S	Conestoga wagon	Intent; load into	function of supplies;	choosing supplies;
	C,0,5,5D,5E	C G L S SD SE	intent C L S SD SE	about what might
		C, O, L, S, SD, SL		be needed
•look at items in	•choose items from	choose supplies from	•know value and	•take on a role at
trading post S	trading post; load	trading post with	function of supplies;	the trading post
	onto Conestoga	intent; load into	choose supplies from	
	wagon	Conestoga wagon	trading post with intent	
	C,G,S,SD,SE	C,G,L,S,SD,SE	C,L,S,SD,SE	
•look at camp fire S	•use cookware;	•use cookware and	•use cookware and food	•participate in
	pretend to cook	food supplies; pretend	supplies; provide	pretending to cook
	over camplire	to cook over camplire	assistance to younger	up a meal at the
	C,F,G,L,S,SD,SE	C,F,G,L,S,SD,SE	C F G L S SD SF	campilire
•too young for	•too young to	•follow directions: use	•follow directions: use	•use software
software program	understand intent of	software program	software program	program
Program	software program	independently or with	independently or with	independently or
	r • 0	others to go on trip	others to plan and	with others
		across the US in a	strategize; to go on trip	
		Conestoga wagon	across the US in a	
		C,F,L,S,SD,SE	Conestoga wagon	
	1		C F L S SD SE	

<u>Cognitive = C:</u> Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity <u>Fine Motor = F:</u> Using hands and fingers, eye-hand coordination

<u>Gross Motor = G</u>; Using arms and shoulders, legs and feet

Language/Literacy = L: Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers <u>Sensorial = S:</u> Touching, tasting, smelling, hearing, looking

<u>Social-Dramatic = SD</u>: Role-play, imagination, drama <u>Social Emotional = SE</u>: Self-concept, independence, interdependence, relationships, turn-taking, sharing, negotiating, leading, following, understanding of diversity

How Visitors Ma	ay Use <i>Nevada Stor</i>	ries, continued		
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Sensory exploring	Problem solving	experimenting	Interpreting and understanding	Partners in play
•touch and try to put miner's gear; pick up rocks, minerals, fossils C.F.S	•put on miner's gear; push cart into mine; find rocks, minerals, fossils C.F.G.S.SD.SE	•put on miner's gear; push cart into mine; find rocks, minerals, fossils C,F,G,S,SD,SE	•use light on miner's hat to help locate rocks, minerals, fossils in cave C,F,G,S,SD,SE	•go into cave; notice rocks, minerals, fossils
•look at rocks/minerals on chart S	•look at and compare rocks and minerals to chart C,L,S,SE	•compare and classify rocks and minerals to those on chart C,L,S,SE	•identify rocks and minerals using chart for information C,L,S,SE	•look at rocks and minerals on identification chart
•look at pan scale; try to pick up weights C,F,G,S	•put rocks and other items on scale; attempt to weigh them C,F,G,S,SE	•weigh rocks on pan scale; record weights C,F,G,S,L,SE	•weigh rocks on pan scale; record weights C,F,G,S,L,SE	•use pan balance
•go into trading post G,S	•take a rock from the trading post C,F,G,S,SE	•bring in personal rock or other item to trade; trade a personal rock at trading post C,F,G,S,SE	•trade rocks; understand concept of trading goods for needed/wanted goods C,F,G,L,S,SE	•examine items in trading post
•listen to rock music S	•play with rock matching interactive; listen to rock music C,F,S,SE	•play rock matching game; learn names of rocks; listen to rock music C,F,L,S,SE	•play rock matching game; identify rocks; listen to rock music C,F,L,S,SE	•identify rocks; learn names of rocks; listen to rock music
•crawl over and touch faux rocks C,F,G,S	•use faux rocks for building C,F,G,S,SE	•build structures with faux rocks C,F,G,S,SE	•plan and build structures with faux rocks C,F,G,S,SE	•talk with other adults about how children problem solve as they build
•watch performances given in performance area C,S	•observe and participate in performances in performance area C,F,G,L,S,SE	•observe and participate in performances in performance area C,F,G,L,S,SE	•observe and participate in performances in performance area C,F,G,L,S,SE	•observe performances
•look at Pony Express map S	•look at Pony Express map S	•look at Pony Express map; recognize names of some posts that have become cities in Nevada C,L,S,SE	•look at Pony Express map; recognize names of some posts that have become cities in Nevada C,L,S,SE	•look at Pony Express map
•touch riding chaps and mail sack	•try to put on riding chaps; put mail into sacks C,F,G,SD,SE	•put on riding chaps; load mail into mail sacks C,F,G,SD,SE	•assist younger children; look at and notice weight of mail sacks S	•look at and notice weight of mail sacks
•sit in saddle with adult assistance S	•sit in saddle with adult assistance; look at virtual reality C,G,S,SE	•sit in saddle; watch virtual reality rider's view; pretend to be riding C,G,S,SE	•sit in saddle; watch virtual reality rider's view; pretend to be riding C,G,S,SE	•watch virtual reality rider's view

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How Visitors Ma	ay Use <i>Nevada Sto</i>	ries, continued		22
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Sensory	Problem solving	Inquiring and	Interpreting and	Partners in play
exploring		experimenting	understanding	
•crawl over and	•sit on pommel	 watch younger 	•watch younger children	•compare height of
onto pommel	ponies; feel tail,	children on pommel	on pommel ponies; feel	self to that of
ponies; feel mane,	mane, saddle;	ponies; feel mane and	mane and tail; compare	horse and
tail, saddle ; look at	pretend to ride;	tail; compare height of	height of self with horse	mustang; look at
mustang and horse	compare height of	self with horse and	and mustang S,L,S,SE	saddle
C,F,G,S	sell to norse and	mustang 5,L,S,SE		
	C F G S SD SF			
•look at	•load wood into	 look at old-fashioned 	 look at old-fashioned 	•look at old-
locomotive; listen	furnace of	locomotive; load wood	locomotive; load wood	fashioned
to whistle; touch	locomotive; pull	into furnace of	into furnace of	locomotive; look
wood F,G,S	cord to sound	locomotive; pull cord	locomotive; pull cord to	at virtual scene
	whistle	to sound whistle; look	sound whistle; look at	from engineer's
	C,F,G,L,S,SD,SE	at virtual scene from	virtual scene from	window; role play
		engineer's window	engineer's window	assigned roles, or
a alimah inta	sait in asata in	C,F,G,L,S,SD,SE	C,F,G,L,S,SD,SE	assign roles
•CIIIID IIIO	•Sit in seats in	•Sit in seals in	•sit in passenger car,	•read map,
crawl onto and over	and carry suitcases	carry suitcases and	familiar Nevada towns	children
suitcases G S	and trunks: look at	trunks: look at map.	and cities on map	ennaren
5411041505 0,5	map	recognize names of	C,G,L,S,SD,SE	
	C,F,G,L,S,SD,SE	Nevada cities		
		C,F,G,L,S,SD,SE		
•crawl over train	•use train track	•plan path and build	•plan path and build	•build train tracks
track building	building materials	train track with	train track with building	with group; talk to
materials G,S	to build train track	building materials	materials	other adults about
	C,F,G,L,S,SD,SE	C,F,G,L,S,SD,SE	C,F,G,L,S,SD,SE	how children
				interact while
				building train track
•pull to stand at	•build and engage	•design train track	•design train track	•look at trains.
train table; handle	in train play at train	configurations; engage	configurations; engage	tracks, and other
small trains	table	in train play at train	in train play at train	components of
C,F,G,S	C,F,G,L,S,SD,SE	table C,F,G,L,S,SD,SE	table; provide assistance	train table; watch
			to younger children	little ones playing
	114 11	1 1 4 1 4 1	C,F,G,L,S,SD,SE •	
•look at map as	•push buttons; look at	•100k at chart listing	•identify groups of people	•look at chart listing
light up when button	C,F,L,S,SE	Nevada; press buttons: trv	identify countries of	Nevada; identify the
pressed by older child	y y y - y -	to identify countries	origin on map C,F,L,S,SE	countries of origin
S		C,F,L,S,SE		on map C,F,L,S,SE





Mary Sinker

My Town

A man travels the world over in search of what he needs and returns home to find it. George Moore

Rationale

When children are playing in an environment built at their scale, where they feel in control and powerful, they become their best selves, learning and growing as they play. Here, they can try on roles, experiment with rules, experience what it is to be in control, and feel real self-esteem, though their imagination play isn't at all real.

My Town offers a variety of child-sized environments that encourage children to enact (and reenact) real and potential experiences; a place where they can problem-solve, cooperate with other players, communicate and learn about being part of a community. The relationship between dramatic play and the language and literacy development of preschool children is well documented in research on early childhood emergent literacy. Whether they are conducting a well-baby visit to the Health Center, fixing a car in for repairs, or feeding a hungry baby doll, they will be experiencing familiar places and objects in new ways, thus learning, engaging in literacy-building activity, and building confidence while they explore and amend social roles and rules.

Goal

•To provide settings where children will engage in empowering role play.

Learning Experiences

Through play in the exhibit components and associated activities, children will:

- •experiment with new roles and imaginings
- •utilize social skills to cooperate and collaborate with others
- •employ creative problem solving
- •formulate questions, make choices and decisions
- •feel competent in the world of pretend

Description

My Town provides visitors with familiar experiences and offers role-play opportunities in three well-known neighborhood settings. *My Town*, with its backdrop of welcoming entryways and seating located in front of the *Baby Doll Day Care*, also serves as a meeting place and interesting setting for performances and programming activities.

Health Care: *Health Care* is warm, friendly and stresses healthy living. The small, comfortable waiting room has chairs and floor cushions next to a low bookshelf with bilingual books about healthy living, nutrition, visiting the doctor and dentist, exercise, healthy eating and health professions. Beautiful, framed photographs of local children visiting neighborhood dentists and doctors decorate the waiting room walls.

Child-sized doctor's jackets hang on hooks next to entrance of the examination room. Visitors may step on a digital doctor's scale to check their weight and measure their height against a measuring ruler mounted on the wall. A comfortable child-height examining bed with push buttons that control light from bright to dim is just the right size for visitors. A child-safe stethoscope is located adjacent to the bed. A counter next to the bed holds inoculation equipment and bandages. An x-ray light box mounted to one wall invites visitors to look at x-rays of various human bones as well as

the entire skeletons of familiar animals such as mice, snakes, frogs, and rabbits. Visitors can try on a variety of brightly colored casts that attach to arms and legs with Velcro. A wall-mounted interactive invites visitors to listen to their own heartbeats as they touch a copper plate. Visitors can speed up their heartbeats by stepping on and off a carpeted step right next to this interactive.

A large model of teeth can be brushed with a giant toothbrush. Next to the teeth, a videotape with rigorous teeth-brushing sounds shows a child brushing her teeth for 2 whole minutes.

People make decisions that influence their health every day. A game-like interactive will invite visitors to see the healthy (or unhealthy!) results of choices they make, be it the risks of smoking, the importance of good nutrition, hand-washing, tooth brushing, or the benefits of exercise.

Bilingual signage and posters about dental hygiene, nutrition, the importance of exercise, sugar and fat contents in healthy foods compared to junk foods and the importance of hand washing to prevent disease adorn the walls of the examination room. A magnetic interactive of the new food pyramid for children invites visitors to put the color-coded food pieces into the correct area of the food pyramid.

Baby Doll Day Care: *Baby Doll Day Care* is a day care center where visitors can play at providing nurturing care to multi-ethnic baby dolls. Softly lit and decorated in gentle colors, the *Baby Doll Day Care* contains a variety of infant care items just right for young caretakers.

Visitors can feed and rock their full-size baby dolls as they sit in child-sized rocking chairs and listen to quiet lullabies and folk songs from around the world sung in many different languages. A basket of small baby toys and rattles provides playthings for the caretakers to use with their baby doll charges. A wind-up swing and doll stroller offer caretakers additional activities for the baby dolls. A changing table stands along one of the walls and holds a stack of Velcro-on cloth diapers and all of the supplies needed to keep the baby dolls clean and fresh. Visitors can put the baby dolls down for their naps in three small baby beds that stand along another wall. Soft fleece blankets in the beds can be used to cover the baby dolls. Several highchairs and feeding equipment further the play. A low bookshelf surrounded by floor pillows holds books about babies and other topics relevant to caring for babies.

A variety of baby-carrying devices ranging from back packs to front packs to slings to strollers is also available, along with pictures from the book 'A Ride on Mother's Back', reinforcing the multicultural nature of this special place.

Beautiful photographs of ethnically diverse babies from around the world decorate the walls.

Kid's Car Care: *Kid's Car Care* buzzes with the sights and sounds of a busy auto mechanic's garage. Overalls for mechanics with the *Kid's Car Care* logo on the back hang from hooks near the entrance and invite young workers to get ready to work on a miniature hybrid car.

Visitors are able to look under the permanently opened car hood, and use tethered tools and large, working flashlight to make repairs; fill the car with gasoline from a miniature gas pump; and sit behind the wheel, put on the seatbelt, and turn on the radio to listen to a variety of tunes including regional favorites, classical, and folk songs. Directional signals flash and making clicking sounds.

A supply of buckets, sponges, squeegees, towels, and a tethered hose provide the equipment to use pretend water to make the car sparkling clean.

Posters on the wall provide information about fuel-efficient and hybrid car technology.

A full size interactive invites visitors to crank up an actual transmission and differential to see how a car works. Another smaller interactive explains brake systems.

Visitors are able to design, build, and test very simple racecars on a looping car track. A variety of interlocking blocks emulating body shapes, wheels and weights give them the opportunity to experiment and see how far their cars will travel, make instant modifications and try again.

A low pile of tires located along one wall offers seating and a place to look at books about vehicles, car stories, travel, and other car-related stories stored in a specially-outfitted, bright red mechanic's tool chest, to adults and other visitors. Another wall has an array of different car seats, including a variety of children's car seats (one is even big enough to hold an adult, letting kids have the experience of buckling their parent into a car seat...and the parents to have the chance to see what it's like!), giving visitors the opportunity to try out all kinds of seating.

How Visitors M	ay Use <i>My Town</i>			
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Sensory	Problem	Inquiring and	Interpreting and	Partners in
exploring	solving	experimenting	understanding	play
•look at health care setting S	•look at health care setting; engage in sustained role and imaginary play; try on doctor's jackets C,F,G,L,S,SD,SE	•look at health care setting; engage in sustained, detailed role play and dramatic play, wear doctor's jackets C,F,G,L,S,SD,SE	•engage in sustained, detailed role play and dramatic play; assign roles and direct play in health care setting C,F,G,L,S,SD,SE	•take on roles as assigned; play along with children
•climb onto chairs, floor pillows, cushions, tires G,S	•sit on chairs, floor pillows, cushions, and tires while looking at books G,S	•sit on chairs, floor pillows, cushions, and tires while reading books G,S	•sit on chairs, floor pillows, cushions, and tires while reading books G,S	•sit on chairs, floor pillows, cushions, tires
•look at scale and height measuring device S	•stand on scale and next to height ruler C,F,G,L,S,SE	•weigh and measure self and others C,F,G,L,S,SD,SE	•weigh and measure self and others C,F,G,L,S,SD,SE	•weigh self; provide assistance to children as needed
•sit on bed with assistance; look at overhead light G,S	•climb onto bed and use props G,S	•climb onto bed and use props appropriately C,F,G,L,S,SD,SE	•climb onto bed and use props appropriately C,F,G,L,S,SD,SE	•play along with children; take on roles as assigned; assign roles
•look at bright x- ray light S	•look at x-rays on x-ray light box C,F,L,S,SE	•look at x-rays on x- ray box; attempt to identify some of the bones and skeletons C,F,L,S,SE	•look at x-rays on x-ray box; identify bones and skeletons C,F,L,S,SE	•look at x-rays on x-ray box; identify bones and skeletons; explain to children

Age 0-2 Years Sensory exploringAge 3-5 Years Problem solvingAge 6-8 Years Inquiring and experimentingAge 9-12 Years Interpreting and understandingAdults Partners in play•touch and look at colored casts S•attempt to put on casts C,F,S,SD,SE•try on casts C,F,L,S,SD,SE•try on casts C,F,L,S,SD,SE•provide assistance to younger children•listen the heartbeat of others; crawl up onto step G,S•touch copper plate; listen to heartbeat; use step to speed up heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•look at big teeth and teeth-brushing video; hold large toothbrush S,G•brush big teeth with large toothbrush; watch teeth-brushing video; understand importance of importance of proper amount of time•watch teeth- brushing for proper amount of time
Sensory exploringProblem solvingInquiring and experimentingInterpreting and understandingPartners in play•touch and look at colored casts S•attempt to put on casts C,F,S,SD,SE•try on casts C,F,L,S,SD,SE•try on casts C,F,L,S,SD,SE•try on casts C,F,L,S,SD,SE•provide assistance to younger children•listen the heartbeat of others; crawl up onto step G,S•touch copper plate; listen to heartbeat; use step to speed up heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•use heartbeat interactive; listen to h
exploringsolvingexperimentingunderstandingplay•touch and look at colored casts S•attempt to put on casts C,F,S,SD,SE•try on casts C,F,L,S,SD,SE•try on casts C,F,L,S,SD,SE•provide assistance to younger children•listen the heartbeat of others; crawl up onto step G,S•touch copper plate; listen to heartbeat; use step to speed up heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat, use step to speed up heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat, use step to speed up heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat, use step to intentionally speed up heartbeat C,G,L,S,SE•use heartbeat interactive; heartbeat C,G,L,S,SE•look at big teeth and teeth-brushing video; hold large toothbrush S,G•brush big teeth teeth-brushing video; understand importance of brushing for proper amount of time•watch teeth- brushing for proper amount of time
•touch and look at colored casts S•attempt to put on casts C,F,S,SD,SE•try on casts C,F,L,S,SD,SE•try on casts C,F,L,S,SD,SE•provide assistance to younger children•listen the heartbeat of others; crawl up onto step G,S•touch copper plate; listen to heartbeat; use step to speed up heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat interactive; listen to heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat interactive; listen to heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat interactive; listen to heartbeat interactive; listen to heartbeat interactive; listen to heartbeat c,G,L,S,SE•use heartbeat interactive; listen to heartbeat interactive; listen to heartbeat interactive; listen to heartbeat large toothbrush; watch teeth-brushing video; understand importance of brushing for proper amount of time•watch teeth- brushing importance of proper brushing
colored casts Scasts C,F,S,SD,SEC,F,L,S,SD,SEC,F,L,S,SD,SEassistance to younger children•listen the heartbeat of others; crawl up onto step G,S•touch copper plate; listen to heartbeat; use step to speed up heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat; use step to speed up heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•use heartbeat interactive; listen to heartbeat C,G,L,S,SE•look at big teeth and teeth-brushing video; hold large toothbrush S,G•brush big teeth with large toothbrush; watch teeth-brushing video; understand importance of brushing for proper amount of time•watch teeth- brushing for proper amount of time
• listen the heartbeat of others; crawl up onto step G,S• touch copper plate; listen to heartbeat; use step to speed up heartbeat C,G,L,S,SE• use heartbeat interactive; listen to heartbeat; crawl up onto step• use heartbeat interactive; listen to heartbeat; crawl up onto step• use heartbeat interactive; listen to heartbeat C,G,L,S,SE• use heartbeat interactive; listen to heartbeat; crawl up onto step• use heartbeat interactive; listen to heartbeat; crawl up onto step• use heartbeat interactive; listen to heartbeat; C,G,L,S,SE• use heartbeat interactive; listen to heartbeat C,G,L,S,SE• use heartbeat interactive; li
• listen the heartbeat of others; crawl up onto step G,S• touch copper plate; listen to heartbeat; use step to speed up heartbeat C,G,L,S,SE• use heartbeat interactive; listen to heartbeat; use step to speed up heartbeat• use heartbeat interactive; listen to heartbeat; use step to heartbeat C,G,L,S,SE• use heartbeat interactive; heartbeat; use step to heartbeat C,G,L,S,SE• use heartbeat interactive; heartbeat; use step to heartbeat C,G,L,S,SE• use heartbeat interactive; heartbeat; watch teeth- brush big teeth with large toothbrush; watch teeth-brushing video; understand importance of of brushing for proper amount of time• use heartbeat interactive; heartbeat; watch teeth- brushing for proper amount of time
heartbeat of others; crawl up onto step G,Slisten to heartbeat; use step to speed up heartbeatinteractive; listen to heartbeat; use step to speed up heartbeatinteractive; listen to heartbeat; use step to speed up heartbeatinteractive; listen to heartbeat; use step to intentionally speed up heartbeat C,G,L,S,SEinteractive; listen to heartbeat; use step to intentionally speed up heartbeat C,G,L,S,SEinteractive; listen to heartbeat; use step to intentionally speed up heartbeat C,G,L,S,SE•look at big teeth and teeth-brushing video; hold large toothbrush S,G•brush big teeth teeth-brushing video; understand•brush big teeth with large toothbrush; watch teeth-brushing video; understand•watch teeth- brushing for proper amount of time
crawl up onto step G,Suse step to speed up heartbeatheartbeat; use step to speed up heartbeatheartbeat; use step to intentionally speed up heartbeat C,G,L,S,SE•look at big teeth and teeth-brushing video; hold large toothbrush S,G•brush big teeth with large•brush big teeth with large toothbrush; video; understand•brush big teeth with large toothbrush; video; understand•watch teeth- brushing video; explain•look at big teeth and teeth-brushing video; hold large toothbrush S,G•brush big teeth video; understand•brush big teeth with large toothbrush; video; understand understand importance of brushing for proper amount of time•watch teeth- brushing importance of brushing for proper
G,Sheartbeatspeed up heartbeatintentionally speed up heartbeat C,G,L,S,SE•look at big teeth and teeth-brushing video; hold large toothbrush S,G•brush big teeth with large•brush big teeth with large toothbrush; watch teeth-brushing video; understand•brush big teeth with large toothbrush; watch teeth-brushing video; teeth-brushing video; understand importance of brushing for proper of brushing for proper amount of time•watch teeth- watch teeth- proper brushing of brushing for proper
C,G,L,S,SEC,G,L,S,SEheartbeat C,G,L,S,SE•look at big teeth and teeth-brushing video; hold large toothbrush S,G•brush big teeth with large•brush big teeth with large toothbrush; watch teeth-brushing video; understand•brush big teeth with large toothbrush; watch teeth-brushing video; understand•brush big teeth with large toothbrush; watch teeth-brushing video; of brushing for proper amount of time•watch teeth- brush big teeth with brush big teeth with large toothbrush; watch teeth-brushing video; of brushing for proper
•look at big teeth and teeth-brushing video; hold large toothbrush S,G •brush big teeth with large toothbrush; watch teeth-brushing video C,G,L,S,SE •brush big teeth with large toothbrush; video; understand importance of brushing for proper brushing for proper
and teeth-brushing video; hold large toothbrush S,Gwith large toothbrush; watch teeth-brushing video; c,G,L,S,SElarge toothbrush; watch teeth-brushing video; understandlarge toothbrush; watch teeth-brushing video; understand importance of brushing for proper amount of timebrushing video; explain
toothbrush S,G teeth-brushing video; understand importance of proper brushing brushing for proper brushing brushing for proper amount of time
video C,G,L,S,SE importance of of brushing for proper proper brushing brushing for proper
brushing for proper amount of time
amount of time C.G.L.S.SE
C,G,L,S,SE
•watch others •play •play •play •play healthy/unhealthy •play
playing healthy/unhealthy healthy/unhealthy choices game; healthy/unhealthy
healthy/unhealthy choices game with choices game; understand and choices game;
choices game S some understanding understand appreciate importance understand
of importance of importance of of making good health importance of
making good health making good health choices C,F,L,S,SE making good health choices C,F,L,S,SE health choices:
choices C,r,L,S,SE choices C,r,L,S,SE health choices,
children
•touch and hold •engage in engage in sustained •engage in sustained •nlav with
baby dolls F,G,S nurturing play with detailed role play and detailed role play and children, take on
baby dolls; engage dramatic play with dramatic play, assign and assign roles
in sustained role baby dolls roles and direct play in
and imaginary play C,F,G,L,S,SD,SE day care setting
C,F,G,L,S,SD,SE C,F,G,L,S,SD,SE
•look at and touch •put dolls in •put dolls in different •put dolls in different •explain about
different baby different baby baby carrying baby carrying various baby
C F G S try to carry dolls dolls with various with various carriers
with various carriers: recognize recognize differences in
carriers · look at differences in carriers · compare
pictures from book carriers: compare carriers to those in book
C,F,G,L,S,SD,SE carriers to those in C,F,G,L,S,SD,SE
book
C,F,G,L,S,SD,SE
•touch car and all •look at Kid's Car •look at health care •engage in sustained, •play in car
Kid's Car Care Care setting; setting; engage in detailed role play and environment;
props C,F,S engage in sustained sustained, detailed dramatic play; assign look at hybrid
role and imaginary role play and roles and direct play in car; consider
piay, try on uramatic piay; wear Kid's Car Care setting making changes
C.F.G.L.S.SD.SE C.F.G.L.S.SD.SE III OWI Cal

How Visitors May Use My Town, continued							
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults			
Sensory	Problem	Inquiring and	Interpreting and	Partners in			
exploring	solving	experimenting	understanding	play			
•look at transmission and brake interactive S	•use transmission and brake interactive C,F,G,L,S,SE	•use transmission and brake interactive with some understanding of their functions C,F,G,L,S,SE	•use transmission and brake interactive with understanding of their functions C,F,G,L,S,SE	•use transmission and brake interactive; understand their functions; provide assistance to children as needed			
•manipulate car pieces; watch others test cars on track C,F,S	•build cars; run cars on track C,F,G,S,SE	•design and build cars; test cars on track; attempt to alter design of cars for better performance C,F,G,L,S,SE	•design and build cars; test cars on track; alter design of cars for optimal performance C,F,G,L,S,SE	•build and test cars; provide assistance as needed			
•climb into car seats C,G,S	•sit in various car seats C,G,S	•sit in various car seats and compare sizes and comfort of various car seats C,G,L,S,SE	•sit in various car seats and compare sizes and comfort of various car seats C,G,L,S,SE	•sit in various car seats; have child do fasteners on the carseat			
•look at photographs S	•look at photographs and recognize familiar settings and situations C,S,SE	•look at photographs, recognize familiar settings and situations, possibly recognize individuals and from community C,L,S,SE	•look at photographs, recognize familiar settings and situations, possibly recognize individuals from community C,L,S,SE	•look at photographs			
•listen to music; songs and sounds S	•listen to music, songs, and sounds S	•listen to music and songs; identify sounds; recognize that some songs are in different languages C,S	•listen to music and songs; recognize different languages of some of the songs; identify sounds C,S	•listen to music, songs, sounds			
•look at posters S	•look at posters and bilingual signage C,L,S	•read posters and bilingual signage C,L,S,SE	•read and understand posters and bilingual signage C,L,S,SE	•look at posters			
•pull books from shelf; look at books F,G,L,S	•look at books; listen to books as they are read by others L,S,SE	•look at and read books C,L,S,SE	•read books with comprehension C,L,S,SE	•read books; read books to children; provide assistance as needed			

<u>Cognitive = C:</u> Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity <u>Fine Motor = F:</u> Using hands and fingers, eye-hand coordination

 $\overline{\text{Gross Motor} = G}$; Using arms and shoulders, legs and feet

<u>Language/Literacy = L</u>: Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers <u>Sensorial = S</u>: Touching, tasting, smelling, hearing, looking

Social-Dramatic = SD: Role-play, imagination, drama Social Emotional = SE: Self-concept, independence, interdependence, relationships, turn-taking, sharing, negotiating, leading, following, understanding of diversity

How Visitors May Use My Town, continued							
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults			
Sensory	Problem	Inquiring and	Interpreting and	Partners in			
exploring	solving	experimenting	understanding	play			
•look at globe; touch; listen to words coming from globe C,F,S	•randomly touch globe; listen to words C,L,S,SE	•touch various countries on globe; listen to "Welcome" in that country's language; attempt to repeat the words C,F,L,S,SE	•touch various countries on globe; listen to "Welcome" in that country's language; learn to say "Welcome" in various languages C,F,L,S,SE	•touch various countries on globe; listen to "Welcome" in that country's language			
•touch plates, bang plates; pull to stand on stools with assistance C,F,G,S	•engage in role play in restaurant setting C,F,G,L,S,SD,SE	•pretend to cook foods from various countries; engage in restaurant play C,F,G,L,S,SD,SE	•pretend to cook foods from various countries; engage in restaurant play C,F,G,L,S,SD,SE	•pretend to eat imaginary food served by children			
•look at books C,S	•look at and attempt to read books C,F,L,S,SE	•read books C,F,L,S,SE	•read books C,F,L,S,SE	•read books to self and to children			
•look at bristlecone tree; S	•look at and touch bristlecone tree F,S	•examine bristlecone tree, notice age of tree, examine tree ring interactive C,F,L,S,SE	•examine bristlecone tree and appreciate information about this tree, especially about the trees longevity, use tree ring interactive to understand how age of tree is determined C,F,L,S,SE	•look at bristlecone tree and tree ring interactive			
•look at mural S	•look at mural; recognize Nevada scenery C,L,S,SE	•look at mural; recognize and identify Nevada scenery C,L,S,SE	•look at mural; identify Nevada scenery C,L,S,SE	•look at mural; identify Nevada scenery			
•look at images and letters on factoid signs S	•activate proximity switches; look at images and bilingual factoids C,L,S	•intentionally activate proximity switches; look at images; read bilingual factoids C,L,S,SE	•intentionally activate proximity switches; look at images; read bilingual factoids C,L,S,SE	•look at images; read bilingual factoids			
•look at map S	•look at map S	•look at map; recognize landmarks and names of cities C.L.S.SE	•look at map; identify landmarks and cities C,L,S,SE	•look at map			

<u>Cognitive = C:</u> Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity

<u>Fine Motor = F:</u> Using hands and fingers, eye-hand coordination

<u>Gross Motor = G</u>; Using arms and shoulders, legs and feet

<u>Language/Literacy = L:</u> Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers

<u>Sensorial = S:</u> Touching, tasting, smelling, hearing, looking

<u>Social-Dramatic = SD</u>: Role-play, imagination, drama

Social Emotional = SE: Self-concept, independence, interdependence, relationships, turn-taking, sharing,

negotiating, leading, following, understanding of diversity



haizlip studio architecture. exhibits. fun. Mary Sinker



Build It!

Each of us is carving a stone, erecting a column, or cutting a piece of stained glass in the construction of something much bigger than ourselves. Adrienne Clarkson

Rationale

Children love to build, and many have had ample opportunities in their little lives to create structures using a variety of small blocks. The *Build It* exhibit offers children the opportunity to experience construction on a grand scale, involving visitors in the construction of building an extension on a family home - as well as providing a rich array of smaller-scale building materials.

This exhibit will foster imaginary play, fine and gross motor skills, and social skills, logic, reasoning, and cooperation. As they plan, design, strategize and assemble buildings of all sizes, children are developing their fine and gross motor skills, honing their ideas and ability to work with others, and employing early math, science and reasoning skills. Through block play, children are confronted with many mental challenges having to do with measurement, equality, balance, shape, spatial relationships and physical properties.

In addition, there are many lessons to be learned about building in earth-friendly ways and using renewable energy resources, thus helping to educate and foster tomorrow's environmental stewards.

Goals

*To provide materials and a setting for open-ended problem solving and cooperation as children play with building materials at both large and small scale.

*To become aware of materials and strategies that are earth friendly.

Learning Opportunities

Through play in the exhibit components and associated activities, children will:

•experience properties of objects and materials: quantity, size, shape, weight, color, pattern, position, length, width

•investigate the interaction of parts within a system through sequential patterns and the relationship of elements

•recognize and investigate a design problem, discover multiple solutions

•discover energy-saving and renewable methods and materials

•engage in cooperative play and problem solving

Description

Build It will offer a rich building experience for museum visitors of all ages. Here, they can not only play at putting together a building, but can also operate a solar panel, see the electricity generated by a wind turbine, make some discoveries about geothermal energy, learn about 'green' materials, become aware of the many simple things consumers can do to conserve the world's resources... and engage in both large- and small-scale construction using a variety of building blocks. They can also test out their small construction at an earthquake table!

Building the house: Children will put on yellow hard hats and tool belts as they enter the *Build It* area and prepare to work at completing a new building. The structure has exposed joists and beams that invite visitors to use materials that look like bricks, wood, or stucco to complete the walls. Inside the building, they can connect PVC plumbing pipes, install insulation, and complete electrical wiring made of rope. Information about respecting the sometimes-deadly power of electricity is prominently displayed.

Canvas buckets can be filled with tools and other supplies and either carried or sent from place to place around the construction site using a simple pulley system. Child-sized wheelbarrows help children move around larger building materials.

Decorating the house: Visitors may also try their hand at interior decorating. Interior walls may be covered with a variety of magnetic wall coverings that offer a wide selection of wallpapers, fabrics, paint colors, and ecologically-friendly materials such as bamboo, grasses, and recycled vinyl. One wall appears to be being painted, and paint rollers and paint trays are alongside so that everyone can lend a hand.

Conservation: A variety of interactives invite visitors to explore the impact of using adequate insulation in walls and around windows as well as energy-efficient glass, demonstrating the amount of energy and dollars that can be saved. Side-by-side hand cranks invite visitors to explore how much *less* energy is needed to light a fluorescent bulb than an incandescent bulb. Changing the light bulbs in a house to fluorescents is the easiest change a consumer can make.

Blocks: As simple as they are, children are compelled to build when offered enough blocks and the space to build in! Next to the house, a variety of large and small blocks are available and provide opportunities for open-ended building of all kinds. Visitors can build independently or work together to build endless creations, including a catenary arch. As part of the block building area, interlocking blocks can be used to test structural strength on a shaking 'earthquake' table.

CAD: A computer kiosk with a simple CAD (computer assisted design) program will invite older visitors to try their hand at designing a building by putting together some basic elements. Computer software for preschoolers, such as *Bob the Builder* software, provides computer activities for the youngest visitors. In this area, architectural drawings of the actual museum are wall-mounted, with a brightly colored arrow indicating the location of the *Build It* exhibit.

Mini-builders: An infant-toddler site is located here as well, and is themed so that it fits into the construction zone. A small playhouse provides building play for the youngest visitors. Little ones could push a large button to ring the doorbell, look out the window, and flip a switch up and down to turn the lights on and off. Plastic tools invite pounding and poking, large soft blocks can be stacked, toted, and climbed onto and over.

Renewable Resources and Energies: A materials board with game-like qualities invites visitors to learn about incorporating *renewable resources* into a new building - from the flooring, including bamboo and cork, and recycled vinyl, carpet to energy efficient glass to the use of florescent light bulbs.

Solar energy is explored with a solar panel that gets its energy from an overhead 'sun'. This solar panel operates a light-and-music station. Visitors utilize a pulley system to draw overhead fabric 'clouds' across to block the sun's light... and stop the sound and light show.

Wind energy is the fastest growing energy technology in the world, and while currently it makes up only a small percentage of our total energy picture, the rate at which it is growing promises to make it an important part of our energy mix in the future. Visitors direct wind from a blower into a small-scale, model turbine, which generates the energy to light the windows on a smallscale multi-story building façade.

Geothermal energy provides 10% of Nevada's power. An interactive demonstrates how extremely hot water under the earth comes up through the wells and creates the flashes of steam that turn the turbines that create the electricity.

Visitors can use a computer program to conduct an *energy 'audit'* on a house, learning a variety of simple changes that can be made to reduce electricity consumption. Part of this program offers the ability to compare a variety of energy efficient appliances to see which items will make the house the most energy efficient. It can also determine the cost savings of keeping the house at various temperatures including the recommended 78 degrees in the summer and 68 degrees in the winter.

Factoids about renewable resources, their importance, and the impact of their use on the environment and for the consumer are located throughout the gallery. All explanatory text, labels and signage are bilingual.

Real Tools: A wood-working area, to be used only with volunteer or staff supervision, has all of the equipment and materials to provide visitors with the opportunity to put on safety goggles and use real tools (which are locked up when the area is not in use) to build their creative ideas. The workshop area is complete with clamps, wood off-cuts, and fun, odd building materials like milk and juice bottle caps, thick corrugated cardboard, brightly colored pieces of dense foam, and other bits and pieces, giving visitors the opportunity to try their hand at building small objects. With the supervision of a staff person to ensure safety and proper use of the tools, visitors will be able to learn how to cut, saw, drill, hammer, and build to their heart's content.

Visitors may take home their creations or display them on shelves in a case for others to see. Bilingual signage about tool and workshop safety is prominently displayed on the walls in this area. Small whiskbrooms and dustpans are available for visitors to help with clean up.

World Homes: Pictures of homes from around the world, in all their glorious diversity, will be present throughout the exhibit – as pictures, or slide shows, or projections and provide unique house-building program opportunities.

Book Nook: A stack of faux building materials on the job site provides seating for adults and gives them the vantage point to watch their older and younger builders at the same time. This seating also offers a comfortable place for children to sit and look at children's books related to construction and architecture stored in a wooden bookshelf made from pieces of building lumber.
How Visitors N	Aay Use <i>Build It</i>			
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Sensorv	Problem	Inquiring and	Interpreting and	Partners in
exploring	solving	experimenting	understanding	nlav
•nut on	•nut on	•nut on construction	•put on construction	•assist children
construction hat:	construction hat:	helmet and tool belt	helmet and tool belt: assist	as needed
touch tools C,F,S	get help to put on	C,F,SD,SE	younger children C,F,S,SD	
	tool belt C,F,SD,			
	SE			
 pick up building 	 place building 	 place building 	•plan and deliberate where	 participate in
pieces; tote	pieces in	pieces in construction	pieces will be placed;	building
around building	construction	building with	work cooperatively with	
pieces	building C,F,G,	deliberation; share	others; direct play	
C,F,G,S,SE	L,5,5D	talk about activity	C,F,G,L,S,SD,SE	
		with other children		
		C F G L S SD SE		
•pick up pvc	•connect pvc pipes	•connect pvc pipes	•plan and deliberately	• participate in
pipes, tote	with assistance as	independently	place pvc pipes to connect	planning and
around C,G,	needed C,F,G,	C,F,G,L,S,SD,SE	plumbing fixtures	connecting
S,SE	L,S,SD,SE		C,F,G,L,S,SD,SE	
•feel puffy	•pick up puffy	•place insulation in	•read about insulation and	•read about
insulation	insulation; push	joists capably	its benefits; place	insulation;
'pillows'; carry	into joists as	C,F,G,L,S,SD,SE	insulation in joists	consider own
pieces			C,F,G,L,S,SD,SE	nome s
•touch rope	•nush rone wiring	•nlace rone to	•determine where	•help lay wiring
wiring C F S	into walls to	complete wiring in	electricity will be needed	explain and
	complete wiring	walls	in house; place rope wiring	interpret safety
	C,F,G,L,S,SD,SE	C,F,G,L,S,SD,SE	accordingly	information to
			C,F,G,L,S,SD,SE	children
 touch interior 	•use push-in panels	 make choices and 	•make choices and	 decorate walls;
decorating panels	to decorate walls	decorate walls with	decorate walls with push	provide help as
and materials S	C,F,G,S,SE	push in panels	in panels C,F,G,L,S,SE	needed
• a point rollor	enrotand to paint	C,F,G,L,S,SE	enrotond to point well with	schow little ones
G S	•pretend to paint wall with paint	with paint roller	paint roller C G L S SE	how to use a
0,5	roller C.G.L.S.SE	C.G.L.S.SE		paint roller
•carry cloth	•carry materials in	•use pulley system to	•use pulley system to	•help children
buckets C,F,G,S	cloth buckets; use	transport materials in	transport materials in cloth	use pulley
	pulley system to	cloth buckets around	buckets to precise areas	system, as
	transport buckets	construction site	around construction site	needed
	C,F,G,S,SD,SE	C,F,G,L,S,SD,SE	C,F,G,L,S,SD,SE	
•ride in	•push	•transport building	•transport building	•take on role as
wheelbarrows	wheelbarrows	materials in	materials in wheelbarrow	work crew or
0,5	around site	C G S SD SE	C,G,S,SD,SE	supervisor
•look at	• attempt to turn	• turn hand cranks to	• turn hand cranks to	• notice which
interactives S	hand cranks to	power different light	power different light	light bulbs are
	power different	bulbs; notice which	bulbs; identify types of	more energy
	light bulbs	bulbs require	light bulbs that require	efficient
	C,G,L,S,SE	more/less energy	more/less energy to	consider using
		C,G,L,S,SE	operate C,G,L,S,SE	them at home

				33
How Visitors N	Aay Use <i>Build It, c</i>	continued		
Age 0-2	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Years	Problem	Inquiring and	Interpreting and	Partners in
Sensory	solving	experimenting	understanding	play
exploring				
•pick up and carry blocks G,S	•build with blocks independently and cooperatively; attempt to stack blocks on earthquake table C,F,G,L,S,SE	•build with blocks independently and cooperatively; work with others to build catenary arch; build on earthquake table C,F,G,L,S,SE	•build with blocks with intent; work with others to build catenary arch; build on earthquake table C,F,G,L,S,SE	•have fun building earthquake-proof buildings; build a catenary arch
•use <i>Bob the</i> <i>Builder</i> software program	•use <i>Bob the</i> <i>Builder</i> software program; watch older children use CAD program; look at architectural drawings C,L,S,SE	•use CAD program to design buildings; look at architectural drawings and recognize components of museum C,L,S,SE	•use CAD program to design buildings with intent; look at architectural drawings and recognize components of museum C,L,S,SE	•use CAD program to design buildings; look at architectural drawings; provide assistance as needed
•interact with all components of house in infant/toddler area C,F,G,L,S,SE	•infant/toddler area not for older children	•infant/toddler area not for older children	•infant/toddler area not for older children	•help little children as needed
•look at renewable resource display S	•look at renewable resource display C,L,S	•look at renewable resource display; notice materials that are used; think about why these materials are renewable C,L,S,SE	•look at renewable resource display; notice materials that are used; think about why these materials are renewable; think about why renewable resources are better for environment C,L,S,SE	•read and absorb information about renewable resources; consider implementing changes in own environment
•climb on faux building materials; pull books from shelf; look at books C,F,G,L,S	•sit on faux building materials; look at books C,F,G,L,S,SE	•sit on faux building materials; read books C,F,G,L,S,SE	•sit on faux building materials; read books C,F,G,L,S,SE	•use seating; read books on bookshelf to children and self; provide assistance as needed
•look at renewable resources game S	•look at renewable resources game; watch older children play game C,L,S,SE	•play renewable resources game with some understanding C,F,L,S,SE	•play renewable resources game with understanding C,F,L,S,SE	•play renewable resources game with understanding; provide assistance as needed

How Visitors May Use Build It, continued					
Age 0-2	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults	
Years	Problem	Inquiring and	Interpreting and	Partners in	
Sensory	solving	experimenting	understanding	play	
exploring					
•look at and listen to solar- powered light and music display C,S	•listen to solar- powered light and sound display; use pulley system to move clouds to block solar power; wonder why light and sound display stopped C,F,G,L,S,SE	•listen to solar- powered light and sound display; use pulley system to move clouds to block solar power; notice that blocked solar source turned display off; understand the connection between clouds lack of solar power C,F,G,L,S,SE	•listen to solar-powered light and sound display; use pulley system to move clouds to block solar power; understand that blocked solar source turned display off; use pulley system to move clouds; understand that solar energy can produce electricity C,F,G,L,S,SE	•activate solar light/music and turn it off with the clouds; explain to children what's going on	
•watch wind source turn turbine; look at lights in building C,S	•direct wind source to turbine; look at lights in building C,L,S,SE	•direct wind source to turbine; notice that more wind causes more lights to shine in building C,L,S,SE	• direct wind source to turbine; watch turbine turn and generate energy light building; understand that wind power can produce electricity C,L,S,SE	• understand that wind power produces electricity; consider feasibility of utilizing wind power	
•look at geothermal interactive S	•look at geothermal interactive S	•look at process of obtaining energy from geothermal interactive C,L,S,SE	•look at and understand process of obtaining energy from geothermal interactive C,L,S,SE	•learn from geothermal interactive	
•not appropriate for this group	•not appropriate for this age group	•use computer; look at energy audit program; learn about simple changes that reduce electricity consumption; look at bilingual factoids C,F,L,S,SE	•use computer; look at energy audit program; learn about simple changes that reduce electricity consumption; understand that everyone needs to do things to reduce energy consumption; read bilingual factoids C,F,L,S,SE	•use computer; look at energy audit program; learn about simple changes that reduce electricity consumption; read bilingual factoids	
•hold pieces used on building/environ ment table interactive; move pieces on building/environ ment table interactive C,F,S	•arrange pieces on building/environm ent table C,F,L,S,SE	•arrange pieces on table; notice how environment, fauna, and people are impacted; wonder why space usage impacts the environment C,F,L,S,SE	•arrange pieces on table; notice how environment, fauna, and people are impacted; understand why space usage impacts the environment; think about how the people must balance C,F,L,S,SE	• understand how components of environment are related and that change has implications	
•youngest children are not allowed in real tool area for safety reasons	•youngest children are not allowed in real tool area for safety reasons	•use tools and materials for building with adult instruction and supervision C, F, S, SE	•use tools and materials for building with adult instruction and supervision C, F, S, SE	•have fun using tools, and helping little ones	

How Visitors May Use Build It, continued				
Age 0-2	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Years	Problem	Inquiring and	Interpreting and	Partners in
Sensory	solving	experimenting	understanding	play
exploring				
 hold whisk 	•attempt to clean	 use whisk broom 	•use whisk broom and dust	 help children
broom and dust	up using whisk	and dust pan to clean	pan to clean up	with cleanup
pan C,F,G,S	broom and dust	up C,F,G,S,SE	C,F,G,S,SE	
	pan C,F,G,S,SE			
 look at visual 	 look at visual 	 look at visual 	 look at visual display on 	 learn about the
display on world	display on different	display on homes	homes around the world;	many different
homes S	homes around the	around the world and	notice differences;	sorts of homes
	world C,L,S,SE	notice differences	compare and contrast with	there are in the
		and similarities from	own home without making	world
		own homes C,L,S,SE	value judgments C,L,S,SE	

Cognitive = C: Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity

Fine Motor = F: Using hands and fingers, eye-hand coordination

 $\overline{\text{Gross Motor} = G}$; Using arms and shoulders, legs and feet

Language/Literacy = L: Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers <u>Sensorial = S:</u> Touching, tasting, smelling, hearing, looking

<u>Social-Dramatic = SD</u>: Role-play, imagination, drama <u>Social Emotional = SE</u>: Self-concept, independence, interdependence, relationships, turn-taking, sharing, negotiating, leading, following, understanding of diversity





Build It!



Da Vinci's Corner

Study the science of art and the art of science. Leonardo da Vinci

Rationale:

Children are natural scientists – and natural artists. As they go about learning about the world they take on challenges with determination as they problem-solve their way to a solution.

Our culture carefully separates art and science. They are studied separately, in different colleges. Artists and scientists are regarded very differently by our society. Yet science and art are both a means of investigation. Both involve experimentation, ideas, theories, creativity and free thought. Both involve testing thoughts, methods, boundaries and materials in places where mind and hand work together: laboratories or studios.

Leonardo da Vinci's work embodied an amazing juxtaposition of art and science. Art and science are based on the same foundation of *doing:* of experimentation, of creativity, of imagination, of free thought, and of investigation. *Da Vinci's Corner* will offer investigations of art that looks a bit like science, and of inquiries into science that look a bit like art.

Goal

To provide an environment and materials that will encourage visitors of all ages to think boldly, try freely, explore intrepidly, invent with ingenuity and in so doing, feel a real sense of excitement about both the product and process of creativity.

Educational Opportunities

Through play and exploration in the exhibit components and associated activities, children will: •observe, explore, experiment, discover, create, invent

•pose questions
•synthesize information
•make predictions
•problem-solve
•feel capable and successful
•explore important elements of science and art

Description

Da Vinci's Corner is a beautiful place that welcomes visitors of all ages to engage in hands-on learning and experimentation, to stretch their imaginations and participate in the creative, hands-on, open-ended exploration of the intersection of art and science. Da Vinci's Corner has an inviting openness where visitors feel safe to try; are emboldened by uniquely beautiful materials; make confident investigations and discoveries... and tap into their own creative center. Visitors young, old and in-between will be welcome here.

Inspiration can be gained from the over-sized reproductions of pages of Leonardo's notebooks, and from the beautiful array of available materials. Soaring overhead, the centerpiece of the gallery is the whimsical, colorful, fanciful and quirky **Helicopter Testing Station**. Here, children build simple whirly-helicopters and then use a mechanical lift to raise and test the flying

machines they've created. They experiment by adding or subtracting blades, adding or subtracting weight, adding color - cool...!

In addition to the amazing Helicopter Testing Station, *Da Vinci's Corner* has three always-open areas: there is an *Art Alcove* where visitors can always make art; there is a *Science Center* where visitors can always do science experiments, and there is a large area called *Connections*, where art and science blend together and visitors have the opportunity to do, to look – and to see - in new ways; to think critically and independently, to pose questions creatively, and to solve problems ranging from simple to complex.

Connections

Part of 'doing' art or science is thinking creatively – and critically. It is looking in new ways, trying new things, repeating them, changing this or that and doing it all again. *Da Vinci's Corner* will offer visitors a myriad of new things to try, think, see, and do. Experiences may include:

Light and Color: A light table with colorful two-dimensional and three-dimensional shapes and forms invites visitors to experiment with color, light, and form. These materials can be changed periodically, so there are always new things to explore. The book <u>Beautiful Stuff: Learning with</u> <u>Found Materials</u> by Cathy Weisman Topal and Lella Gandini shows some enchanting possibilities.

Mobiles: a central 'pole' can have variously curved arms hung from it. From the ends of the arms can be hung a variety of beautiful (and changeable) objects. Goal is to find the perfect balancing point, as well as to create a thing of beauty.

Magic Tops: Using a long bolt and other bits and pieces and a CD as the horizontal surface, make a top to spin at this table, and then direct a light source on the CD as it spins to watch rainbows dart around the room.

Nearby is a place where visitors can make their own top topper, slip it over the shaft of a pre-made top, and see what their lines and colors look like when they're spinning.

Moiré Patterns: Using a variety of screens (some are, quite literally, framed screens) and an assortment of patterns, visitors can combine the two to make dizzying, dazzling, dancing patterns and images.

Anamorphosis: Leonardo was interested in anamorphosis, an image that is painted in a way that makes it appear distorted unless viewed from a specific viewpoint on an optical device. Here, visitors can use mirror cylinders to view a variety of anamorphic images....and try creating an anamorphic image of their own!

A mirror table with a variety of mirrors that challenge ones ways of looking – and what you see. This could include the following, and others:

*an 'infinity' mirror, that shows that images of images of images can repeat forever;

*spherical reflections, a tightly packed box of mirrored balls, each reflecting a unique image of the world;

*a mirrored 'corner' and objects (both half- and whole-) to put into the corner to see what happens

*a highly reflective curved round sink with patterned cylinders to insert into the drain hole to see what the effect a mirrored parabola has on line and pattern

*of course, no *Da Vinci's Corner* would be complete without examples of Leonardo's mirror writing, other examples of mirror writing, and materials to try some mirror writing (and drawing!) of one's own.

Spinning spinning tops: A variety of spinning tops is available to spin on a spinning disk inset into a tabletop. Visitors can vary the speed of the spinning disk – and watch how spin speed affects the spin of their tops. With light-up tops, maybe there is a way to shield the table so that it is quite dark.

Moving Patterns: An assortment of patterns and a simple adjustable-speed turntable can be combined to see the effect of motion on pattern. Make your own patterns and try them out, too!

The **Sound Center** has a variety of sound experiments –string vibrations; the effect of different drumheads on a simple drum form; different lengths of piping to experiment with chimes or xylopipes. Perhaps a couple sets of boomwhackers, too!

An **Aeolian Harp** is adjacent to the sound table and combines sound and airflow. The harp can be pivoted, and air velocity can be dialed up and down to play with the different sound possibilities.

An **Air Table** offers opportunities to create patterns and interesting visual effects by putting a variety of beautiful things into an air flow: ribbons, scarves, multi-colored pinwheels. The air flow can be adjusted in volume and direction.

Lines in Motion: A simple table fan or old-fashioned record player turntable provides a spinning surface on which to place paper disks with different patterns. As the disk spins, the moving image looks much different from the original. Visitors may create their own disks using markers on paper disks or use prepared, laminated disks.

Magnetic Kinetic Column, perhaps three or four sided, provides an opportunity to make magnetic pictures, using very simple 'found' objects such as spoons, strainers, big bolts etc.

Tessellations: MC Escher is one of the most famous artists to play around with tessellations (tessellations are 'tiled' polygons that do no overlap, or contain holes between the shapes). Various tessellating polygons (including some of Escher's!) will be available here.

Computer Generated Art: There are some wonderful commercially available computer art programs, and while we don't want visitors spending their entire visit in front of a computer screen, there will be some who relish the opportunity to try new programs, such as "Kaleidodraw", "Click and Create with Mia", and "KidPix".

Shadow Play: A wall-mounted shadow box encourages visitors to use their hands and other objects to make create interesting shadow pictures.

An **Overhead Projector** across from a white wall provides opportunities for experimentation - with mixing colors using colored cellophane, with projecting small shapes onto paper on the wall and traced, for example. Various materials and objects can be arranged and projected onto the wall to create patterns and designs.

Art Alcove

Similar in look and feel to an artist's studio, the *Art Alcove* offers children richly varied materials along with a belief in and respect for children's creative spirits. The alcove is cozy and comfortable for 10 to 12 people to use it at once. Full of light and bursting with creative energy, here visitors of all ages can explore and experiment with their own creativity, without direction. It is these unguided, open-ended, noncompetitive and free-flowing experiences that so encourage the *process* of art, putting children in touch with their own creative powers.

A variety of art activities are available. Some are permanently in place; others rotate from time to time. Art activities can include:

***Paint on an acrylic panel**: from one or two sides (and use a water spray bottle and squeegee when they want to change their picture).

***Different types of markers, crayons, and colored pencils**: and a good supply of paper - provide drawing opportunities. Mindful of paper waste, visitors will be offered newspaper, recycled office paper, brown paper bags, tissue paper, crumpled paper - even paper towels can be used for variety.

*Colorful (dustless) chalk is available for chalk pictures. If so inspired, grab a pair of goggles and try chalking the underside of the table!

*Visitors can make an impression at the clay table using plenty of **non-drying clay** and lots of tools: things to make textures, things to mold, cut, poke, pound, roll, and build.

*Large wipe-off white boards give everyone an opportunity to create a masterpiece... without wasting paper! Super-bright wipe-off markers on a black backlit board (such as are used in restaurants) offer another way to experience colors. Inspiration idea cards offer suggestions for drawings as well as offer pictures of works of art created by world famous artists over the ages. *Beautifully framed flat-screen monitors located both in the alcove and in the larger space provide an ongoing and ever-changing gallery showing visitor's art as well as world art and art masterpieces.

*Water-soluble crayons make wonderful **face paints**, and there is no more wonderful art canvas than one's own face, so there will be a face-painting kiosk in or near the *Art Alcove*.

The materials available are limited only by the imagination of staff. For example, even simple changes to materials can completely alter the experience: paint can be mixed thin or thick, very wet or fairly dry, slippery or sticky on the brush. The brush, too, can be varied, from cotton balls to Q-tips to basting brushes to brushes intended for painting walls.

Materials will be rotated so repeat visitors have opportunities to investigate new materials. Remaining constant in the *Art Alcove* is the fact that there are always new ways to experience the process of art.

Science Center

With the same philosophy as the *Art Alcove* (described above), the *Science Center* offers children richly varied materials that invite them to investigate, inquire, think, experiment, try, revise and try again. The *Science Center* can comfortably accommodate 10 to 12 people at a time. The openended materials encourage visitors to be inventive – and to invent; to be creative – and to create. A variety of science activities are available. Some are permanently in place; others are changed out from time to time. Small white boards with tethered markers attached to each activity area provide the opportunity for visitors to record their observations as well as read those of others. *Science Center Center* activities can include:

Zoob table: Zoobs are a building set with a difference -- the pieces pop together to form joints that rotate, limbs that extend, axles that spin, and lots more. Kids can create simple models in minutes, or get absorbed and spend ages creating models that look like robots or DNA strands or as they experiment with size, shape, and balance.

Gears and gizmos: Visitors can arrange and rearrange gears to create endless moving combinations that teach basic mechanics.

Magnificent roller coaster ramps: Using a series of vertical pillars and an assortment of ramps, tubes, flaps, spinners, loops, and boxes, visitors work together to create a ball ramp that wraps around and travels over the various pillars as they experiment with gravity, velocity, centripetal force, acceleration and friction.

Build with magnets: Unlimited non-linear building possibilities are possible with this huge collection of balls and magnetic connectors that can be used to build all kinds of figures and structures.

Make-a-Maze: A tilt-table has a grid along the bottom that can be fitted with slats that create 'baffles'... along with a small ball that freely moves through the maze when the table is tilted. Children work solo or together to build a maze into the floor of the tilt table, and then see if they can operate the table to take the ball along their route. To add to the fun, additional holes in the bottom of the tilt table serve as mounts for a variety of found objects that can make a noise when hit by the ball – copper pipe, wood blocks, small bell, etc. Two people operate the maze table, tilting one way and then the other, causing the ball to not only move through the maze, but to make musical sounds, as well.

Catapult Cage: A netted 'cage' similar to those found in arcades will provide all the safeguards needed to test out a variety of very small catapults and trebuchets. Using a tension based catapult, visitors will see how far they can shoot a soft ball. They can vary the load weight, the shape of the load, the tension of the rubber bands, etc.

A trebuchet is a counterweight-based catapult. Here visitors can use a trebuchet to shoot a load and see how far they can reach. Variables include load weight, counter weight, load shape, etc.

Wobble Table: A wobbly board above a bin full of different sizes and shapes of wooden blocks, provides the base for visitors to build structures with blocks as they experiment with balance, weight, the center of gravity, and gravity. As blocks tumble when the table surface shifts, they fall into the bin below the wobble table and are ready for the next building experiment.

Art Fusion

Art, color, technology, music, movement, light, and performance will be highlighted along one wall with an assortment of Zachary Booth Simpson's '*Mine Control*' installations that will be rotated every few months. These installations may include "Sand", Butterflies" and "Moderation" (water images on the floor).

Distribution of Gallery Activities in Da Vinci's Corner

Gallery Activity	Årt	Connections: Fusion	Science
		of Art/Science	T 7
Helicopter			X
Paint on acrylic panel	Χ		
Wide variety of	X		
drawing implements			
Colored chalk	X		
Clay and moldable	X		
materials and tools			
White boards and	Х		
markers; Black, back lit			
boards and markers			
Inspiration cards	X		
On-going art works	X		
slide show			
Face paints	X		
Zoob table			Х
Gears			Х
Roller Coaster Ball			Х
Ramp			
Magnets			Х
Maze			Х
Catapults			Х
Wobble table			Х
Light and color		Х	
Mobile		X	
Build a top		X	
Moire Patterns		X	
Anamorphosis		X	
Mirror Table		X	
Spinning, spinning tops		X	
Sound Center		X	
Aeolian Harp		X	
Air Table		X	
Magnetic Kinetic		X	
Column			
Tesselations		Х	
Computer Art		Х	
Overhead Projector Art		Х	
Mine Control		X	

How Visitors May Use <i>Da Vinci's Corner</i>				
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults

				43
Sensory	Problem	Inquiring and	Interpreting and	Partners in
exploring	solving	experimenting	understanding	play
•look at large Da Vinci sketches S	•look at large Da Vinci sketches S	•look at large Da Vinci sketches; recognize some items and figures C,L,S,SE	•look at large Da Vinci sketches; identify items and figures C,L,S,SE	•look at large Da Vinci sketches
•look at helicopter lift; watch helicopters descend C,S	•watch helicopters descend; attempt to build helicopter; use lift C,F,G,L,S,SE	•watch helicopters descend; build helicopter; experiment with different helicopter designs; use lift C,F,G,L,S,SE	•watch helicopters descend; build helicopter; experiment with different r designs with deliberate intent to improve flying capabilities; use lift C,F,G,L,S,SE	•watch helicopters; build helicopter; use lift
•touch and carry colorful shapes; look at light box; place items on light box surface C,F,S	•place shapes on lighted surface; look at colors C,F,L,S,SE	•experiment with colorful shapes and items on lighted surface; notice how light affects colors C,F,L,S,SE	•use colorful shapes and items on lighted surface with intent; notice how light affects colors C,F,L,S,SE	•place shapes on lighted surface; notice how light affects colors
•look at mobile S	•put objects on arms of mobile; watch mobile move C,F,S,SE	•put various objects on arms of mobile; notice how the mobile moves with these objects; experiment with various objects C,F,L,S,SE	•put various objects on arms of mobile; notice how the mobile moves with these objects; choose various objects with intent to achieve desired motions C,F,L,S,SE	•put various objects on arms of mobile; notice how the mobile moves with these objects
•watch tops spin C	•make tops; attempt to spin tops; direct light source at tops C,F,L,S,SE	•make a variety of topsdirect light onto tops and watch rainbows created C,F,L,S,SE	•make tops using available materials; spin tops; direct light onto tops and watch rainbows created C,F,L,S,SE	•make tops; spin tops
•look at Moiré patterns C	•look at patterns created by screens; attempt to create Moiré patterns C,F,L,S,SE	•experiment with various screens and patterns to create a variety of images C,F,L,S,SE	•use with various screens and patterns to create a variety of images with intent C,F,L,S,SE	•create images and screens to create Moiré patterns
•look at images in mirror C	•look at anamorphosis images in mirrors C,L,S	•look at anamorphosis images in mirrors; attempt to understand how these images are made; attempt to create anamorphic image C,F,L,S,SE	•look at anamorphosis images in mirrors; understand how these images are made; create anamorphic image C,F,L,S,SE	•look at anamorphosis images in mirrors; understand how these images are made
•look at images in various mirrors S	•look at images in various mirrors; notice different ways images are reflected C,L,S,SE	•look at different ways images are reflected in mirrors; experiment with different items in various mirrors; try mirror writing C,F,L,S,SE	•notice and compare different ways images are reflected in mirrors; experiment with different items in mirrors; try mirror writing C,F,L,S,SE	•notice and compare different ways images are reflected in various mirrors; try mirror writing
How Visitors M	ay Use <i>Da Vinci's</i>	Corner, continued	Γ	Γ
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults

				44
Sensory	Problem	Inquiring and	Interpreting and	Partners in
exploring	solving	experimenting	understanding	play
•watch tops spin on spinning surface S	•attempt to spin tops on spinning surface C,F,S,SE	•spin tops on spinning surface; experiment with various speeds C,F,L,S,SE	•spin tops on spinning surface experiment with various speeds; predict how the top will spin C,F,L,S,SE	•spin tops on spinning surface experiment with various speeds
•watch patterns spin on turntable S	•choose patterns; watch patterns spin on turntable; draw pattern and watch it spin on turntable C,F,L,S,SE	•notice how different patterns look as they spin at various speeds; draw own patterns; notice how they look at various speeds of turntable C,F,L,S,SE	•notice and compare how different patterns look as they spin at various speeds; draw own patterns and notice how they look at various speeds of turntable C,F,L,S,SE	•notice and compare how different patterns look as they spin at various speeds
•listen to sounds; touch, shake, thump, bang on various items to make sounds C,F,G,S	•try all sound experiments; create sounds C,F,G,L,S,SE	•experiment with all sound activities C,F,G,L,S,SE	•create sounds with all sound activities C,F,G,L,S,SE	•create sounds with all sound activities
•listen to Aeolian harp S	•listen to Aeolian harp; push on and pivot harp C,G,S,SE	•listen to Aeolian harp; push on and pivot harp to create different sounds C,G,S,SE	•listen to Aeolian harp; push on and pivot harp to create different sounds with intent C,G,S,SE	•listen and operate Aeolian harp
•touch air table items; watch items flutter and flow over air F,S	•choose items; place over air table; watch movement of items C,F,L,S,SE	•experiment with various materials over air table; adjust air flow; predict how the air will handle the materials C,F,L,S,SE	•experiment with various materials over air table at various rates of air flow; predict how the air will handle the materials C,F,L,S,SE	•experiment with various materials over air table at various rates of air flow
 look at images on spinning fan S touch items stuck 	 notice how images change on spinning fan; create own pictures for fan C,F.S,SE arrange items on 	 notice how images change on spinning fan; create own pictures to spin on fan; notice how image changes while spinning C,F,S,SE create pictures by 	 notice how images change on fan; create own pictures to spin on fan; predict how images will change; notice how image changes C,F,S,SE create pictures by 	•notice how images change on spinning fan; notice how image changes in appearance while spinning C,F,S,SE •create pictures by
to magnetic column; pull items off; attempt to put items on C,F,G,S	magnetic column C,F,G,L,S,SE	placing items on magnetic column C,F,G,L,S,SE	placing items on magnetic column C,F,G,L,S,SE	placing items on magnetic column
•touch tessellation pieces S	•use tessellation pieces; attempt to make designs C,F,L,S,SE	•use tessellation pieces to create desired image C,F,L,S,SE	•understand tessellation concept; use tessellation pieces to create image C,F,L,S,SE	•use tessellation pieces to create desired image
•touch computer; look at computer screen C,S	•use art programs on computer C,F,L,S,SE	•use art programs on computer C,F,L,S,SE	•use art programs on computer C,F,L,S,SE	•use art programs on computer
Age 0.2 Vegar	ay Use Da Vinci's	Ago 6 9 Voorr	Ago 0 12 Voora	A dral4a
Age U-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults

				45
Sensory	Problem	Inquiring and	Interpreting and	Partners in
exploring	solving	experimenting	understanding	play
•watch shadows S	•use hands to make shadows C,F,G,S,SE	•experiment with hands and items to create shadows C,F,G,L,S,SE	•use hands and items to create shadows C,F,G,L,S,SE	•use hands and items to create shadows
•look at light and images projected onto wall S	•use items with projector; look at images projected onto wall C,F,L,S,SE	•experiment with items to create desired images on wall C,F,L,S,SE	•use items to create desired images on wall C,F,L,S,SE	•watch images created on wall
•participate in <i>Mine Control</i> activity C,G,S	•participate in <i>Mine Control</i> activity C,F,G,L,S,SE	•participate in <i>Mine</i> <i>Control</i> activity C,F,G,L,S,SE	•participate in <i>Mine</i> <i>Control</i> activity C,F,G,L,S,SE	•participate in Mine Control activity
•look at paint on acrylic panel; touch panel; attempt to paint; attempt to spray water and use squeegee C,F,G,L,S,SE	•paint on acrylic panel; paint on one side of panel while another person paints on the other side; use materials to clean up C,F,G,L,S,SE	•paint on acrylic panel; interact with other person painting on the other side of panel; experiment with color blending; use materials to clean up C,F,G,L,S,SE	•paint on acrylic panel; interact with other person painting on the other side of panel; overlap colors with intent; use materials to clean up C,F,G,L,S,SE	•paint on acrylic panel with children
•grasp drawing implements; make marks on paper C,F,S	•use drawing implements and paper to draw C,F,S,SE	•use drawing implements and paper to draw C,F,S,SE	•use drawing implements and paper to draw C,F,S,SE	•use drawing implements and paper to draw
•crawl under chalk table G,S	•use chalk on chalkable surfaces; wear goggles; draw under the table C,F,G,L,S,SE	•use chalk on chalkable surfaces; wear goggles; draw under the table C,F,G,L,S,SE	•use chalk on chalkable surfaces; wear goggles; draw under the table C,F,G,L,S,SE	•draw with chalk
•touch clay F,S	•manipulate clay; use tools on clay C,F,G,S,SE	•use clay and tools to experiment with and make shapes and other items C,F,G,S,SE	•use clay and tools to make shapes and other items with intent C,F,G,S,SE	•use clay and tools
•grasp erasable markers; make marks boards F,S	•use erasable markers on boards C,F,S,SE	•use erasable markers on boards; experiment with colors C,F,S,SE	•use erasable markers on boards; use colored markers to create effects C,F,S,SE	•use erasable markers on boards
•look at art images on monitor S	•look at art images on monitor; identify items in art images C,L,S,SE	•look at art images on monitor; recognize and identify items some art images C,L,S,SE	•look at art images on monitor; recognize and identify art images C,L,S,SE	•look at art images on monitor; recognize and identify art images
•watch gears spin; touch and manipulate gears C,F,S	•arrange gears; spin gears; watch action C,F,G,L,S,SE	•arrange and rearrange gears; see gears spin and move each other C,F,G,L,S,SE	•arrange and rearrange gears; see gears spin and move each C,F,G,L,S,SE	•arrange gears; watch gear movements

How Visitors M	How Visitors May Use Da Vinci's Corner, continued					
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults		
Sensory	Problem	Inquiring and	Interpreting and	Partners in		
exploring	solving	experimenting	understanding	play		
•watch ball roll down ramp; hold ball throw ball C,F,G,S	•work with others to create roller coaster ball ramp; watch ball roll down ramp C,F,L,S,SE	•use various components of roller coaster ramp materials; build roller coaster, test with ball; experiment with various roller coaster designs; make adjustments to create desired path for ball C,F,L,S,SE	•use various components of roller coaster ramp materials; build roller coaster ramp; test roller coaster ramp with ball; make adjustments to create desired path for ball C,F,L,S,SE	•test roller coaster ramp with ball		
•put magnets on and pull magnets off magnetic structure F,G,S	•build with magnetic pieces C,F,L,S,SE	•build magnetic structures and forms using all types of magnetic pieces C,F,L,S,SE	•build magnetic structures with intent C,F,L,S,SE	•build magnetic structures		
•watch other children make and manipulate maze; listen to sounds made by ball S	•attempt to place baffles in maze; work with others to manipulate maze; listen to sounds made by ball C,F,L,S,SE	•plan and place baffles in maze; manipulate maze with others or independently; create musical sounds with intent C,F,L,S,SE	•plan and place baffles in maze with intent; manipulate maze with others or independently; create musical sounds with intent C,F,L,S,SE	•plan and place baffles in maze with intent; manipulate maze with others		
•watch catapult toss balls S	•use catapults to toss balls; watch others; choose weight of balls that are tossed C,G,L,S,SE	•use catapults to toss balls; choose weight of balls that are tossed; experiment with different tensions; compare action of different types of catapults C,G,L,S,SE	•use catapults to toss balls; choose weight of balls that are tossed; experiment with different tensions; compare action of different types of catapults; understand catapult mechanism C,G,L,S,SE	•use and experiment with catapults to toss balls		
•watch blocks fall on wobble table S	•attempt to build with blocks on wobble table; watch blocks fall C.F.S.SE	•attempt to build with blocks on wobble table; watch blocks fall C,F,S,SE	•attempt to build with blocks on wobble table; watch blocks fall C,F,S,SE	•attempt to build with blocks on wobble table; watch blocks fall		

<u>Cognitive = C:</u> Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity

<u>Fine Motor = F:</u> Using hands and fingers, eye-hand coordination

<u>Gross Motor = G</u>; Using arms and shoulders, legs and feet

<u>Language/Literacy = L:</u> Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers

<u>Sensorial = S:</u> Touching, tasting, smelling, hearing, looking

<u>Social-Dramatic = SD</u>: Role-play, imagination, drama

<u>Social Emotional = SE:</u> Self-concept, independence, interdependence, relationships, turn-taking, sharing, negotiating, leading, following, understanding of diversity









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Little Discoveries

Babies are necessary to grown-ups. A new baby is like the beginning of all things --wonder, hope, a dream of possibilities.

Eda Le Shan

Rationale

The littlest museum-goers – those under age 2 – and their caregivers have very unique museum needs. Both adults and little ones are struggling with issues of autonomy and independence; both adult and child are taking first steps into the wider world, and need support and a caring environment to feel confident and emboldened. Babies and toddlers also need protection from the large and fast older children; the infant-toddler areas provide a safe harbor.

It is for this reason that Nevada Discovery Museum is creating several areas that are carefully designed to meet the needs of both parents and their littlest children. *Little Discoveries* is the largest of the infant-toddler areas; others are incorporated into individual galleries.

Little Discoveries offers carefully stepped developmental challenges to encourage every little body to grow and develop. The earliest years are the most significant learning period in life. The whole world and everyone in it presents learning opportunities, during all waking hours. An environment rich in possibilities and someone to share it with gives a tiny child the very best start possible.

The learning needs of adults are carefully considered, too. In this special place, adults will have an opportunity to meet and visit with other caregivers, and will learn about their little children's developing skills.

Goals

•To provide special learning environments focusing on the developmental abilities and milestones of infants and toddlers

•To provide parents and caregivers with an environment that helps them understand and enrich their little one's development.

Learning Opportunities

Infant/toddler areas will include elements that will invite exploration of:

- social interaction
- •sound, music and light
- •tactile experiences
- •cause and effect
- •appear and disappear
- •language

•physical movement including batting, kicking, pounding, crawling and pull-to-stand

Description

The *Little Discoveries* space is the primary infant/toddler area in the museum. It is centrally located and reflects the natural beauty and colors of the countryside that surrounds Reno. Luscious with textures, with light filtering through an overhead canopy in sometimes-surprising ways, the environment inspires little ones to roll and creep, sit and stand, look and feel, pile and build, experience and pretend, explore and discover.

A mustang pony with a silky tail and mane lies in the middle of the area and invites children to crawl right over and onto it. A wooly sheep is just the right height to pull up on and stand against. Mountain bluebirds may be placed into and taken out of nests. A small, old-fashioned miner's cabin has a low table, cooking equipment, plates and cups. Soft baby dolls can be put to sleep in small cradles. A child-sized rocking chair is just right for sitting. Children can pull to stand at the windows and take a look around.

Outside the little house, wall-mounted activities at just the right height give the youngest visitors the opportunity to look at animal pictures and push buttons to hear their sounds, operate a bubble column, use a tethered beater to play music on a xylophone, and turn dials and flip switches to see what happens.

One wall is covered with mirrors and gives children the opportunity to watch others and themselves. A woven basket contains a number of board books, which introduce the importance of literacy and appreciation for books at this youngest age.

One corner provides mothers with a special, quiet, relaxing and somewhat secluded place for nursing.

Comfortable bench seating surrounds the entire area, inviting adults to straddle the bench to pay attention to both their older and younger children. Clearly written bilingual signage, pamphlets, and books provide adults with helpful information that offers insights to help them better understand and enrich their children's development.

Flexible in use, this space can be used just for individual visits by the youngest children and their adults, or can easily have a central space cleared to be used as a place for special programming such as sing-alongs, music and movement, puppet shows or other group activities that will captivate the attention of these little museum goers.

Several other smaller infant/toddler nests in other parts of the museum are bright, beautiful, and themed to compliment and reinforce the adjacent galleries and their content. Easy to clean, safe, and easy to maintain, these cozy areas provide children with materials and activities that provide opportunities for gross and fine motor development, sensory exploration, language stimulation and development, and early problem-solving, especially cause and effect. Low comfortable bench seating around the perimeter of each infant/toddler nest offers adults a nice place to sit while watching their older children in the surrounding galleries at the same time they are observing their younger children's developing skills and personalities. Bilingual signage, printed materials, and books provide adults with additional information.

How Visitors May Use <i>Little Discoveries</i>					
Age 0-2 Years	Age 3-5	Age 6-8 Years	Age 9-12	Adults	
Sensory exploring	Years	Inquiring and	Years	Partners in play	
	Problem	experimenting	Interpreting		
	solving		and		
	0		understanding		
•climb onto mustang pony; feel mane and tail C,F,G,S	•not appropriate for older children	•not appropriate for older children	•not appropriate for older children	•use language to identify mustang and how it feels; talk to other adult caregivers about children; observe children	
•pull to stand on sheep; feel wooly texture C,F,G,S	•not appropriate for older children	•not appropriate for older children	•not appropriate for older children	•talk to child; help feel sheep's fleece; talk to other adult caregivers about children; observe children	
•put bluebirds in and out of nest C,F,S	•not appropriate for older children	•not appropriate for older children	•not appropriate for older children	•help little ones put birds in and out of nest; talk to other adult caregivers about children; observe children;	
•play with cooking equipment, plates, cups C,F,G,L,S,SE	•not appropriate for older children	•not appropriate for older children	•not appropriate for older children	•talk to other adult caregivers about children; observe children; provide assistance as needed	
•hold and carry baby dolls; put into cradles C,F,G,S,SD,SE	•not appropriate for older children	•not appropriate for older children	•not appropriate for older children	•talk to other adult caregivers about children; observe children	
•look out of house window S	•not appropriate for older children	•not appropriate for older children	•not appropriate for older children	•talk to other adult caregivers about children; observe children	
•interact with, look at, and listen to all wall- mounted interactives including push buttons, bubble column, xylophone, dials, switches, mirrors C,F,G,L,S,SE	•not appropriate for older children	•not appropriate for older children	•not appropriate for older children	•talk to other adult caregivers about children; observe children	
•pull books out of basket; look at books; listen to stories C,F,L,S	•not appropriate for older children	•not appropriate for older children	•not appropriate for older children	•talk to other adult caregivers about children; observe children; provide assistance as needed	

How Visitors May Use Little Discoveries, continued					
Age 0-2 Years	Age 3-5	Age 6-8 Years	Age 9-12	Adults	
Sensory exploring	Years	Inquiring and	Years	Partners in play	
	Problem	experimenting	Interpreting		
	solving		and		
			understanding		
•pull to stand on adult	 not appropriate 	 not appropriate 	 not appropriate 	Sit! Enjoy!	
seating G,S	for older	for older children	for older children		
	children				
 not used by children 	•not used by	 look at bilingual 	 read bilingual 	 read bilingual 	
	this age	printed materials	signage,	signage, pamphlets,	
	children	C,L,S,SE	pamphlets, books	books about child	
			about child	development	
			development		
			C,F,L,S,		

<u>Cognitive = C:</u> Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity

<u>Fine Motor = F:</u> Using hands and fingers, eye-hand coordination

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<u>Language/Literacy = L:</u> Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers

<u>Sensorial = S:</u> Touching, tasting, smelling, hearing, looking

<u>Social-Dramatic = SD</u>: Role-play, imagination, drama

Social Emotional = SE: Self-concept, independence, interdependence, relationships, turn-taking, sharing,

negotiating, leading, following, understanding of diversity



Space Odyssey

When I examine myself and my methods of thought, I come to the conclusion that the gift of fantasy has meant more to me than any talent for abstract, positive thinking. Albert Einstein

Rationale

From the beginning of time, people have wondered about things that they see in the sky. In an attempt to explain what they see, the moon, the sun, the stars and planets have all been woven into folklore and myth by cultures all over the world.

Today's children have grown up in the era of human travel into the inner reaches of space, and it has captured their imaginations. From dreaming about walking on the moon, to imagining themselves on a space ship, anything seems possible... and in a sense, it probably is!

The fantasy-enhanced space environment created in *Space Odyssey* offers visitors many opportunities for rich play, exciting their minds and perhaps encouraging a lifelong interest in the universe. Older children will be encouraged to learn about the world beyond our own planet, using the exhibit as a springboard to further research and discovery. Hands-on experiments engage children in the learning process, promoting math, science, technology and engineering education by nurturing their enthusiasm for the wonders of the universe and inspiring them to continue the stellar work of today's space explorers.

Goals

•To create a fantasy space environment that provides rich opportunities for imaginative play •To encourage children to learn about the world beyond our own planet

Learning Outcomes

Through play in the exhibit components and associated activities, children will:

- •use their imaginations to play out both familiar and unfamiliar roles and experiences •engage in cooperative play
- •express wonder and ask questions about their world
- •consider facets of our universe

Description

A low-level **sensory maze** serves as the entrance to *Space Odyssey*. Visitors go through this maze on their hands and knees (except for the toddlers, who are just about the right size to toddle through the various 'doorways'). The very act of entering heightens awareness, and gets visitors ready for an 'anything can happen' sort of experience as they move into a new dimension. The sensory maze includes:

*tessellated 'pods' or tunnels, modular for ongoing change

*temperature changes

*light changes, including color changes

- *textural changes abound
- *sounds including an acoustically dense area
- *areas with fragrances for olfactory stimulation
- *optical illusions
- *mirrors, both two-way and 'funhouse'

*holes to reach through and touch people in another 'pod'
*a variety of ways to talk to visitors in other pods
*air jets
*glowing fiber optic objects, stars, planets, and satellites
*signage notifies space explorers that the sensory maze is plunged into deep, outer space darkness for 15 minutes at a time every hour; light is provided by glowing stars, planets, and other outer space objects throughout the maze.

Once within the gallery, the *Space Odyssey* explorations begin. Here, the primary power source is the imagination, which is capable of blasting visitors to never-explored areas of deep space. Though *Space Odyssey* is mostly about playing and using fantasy to imagine, there is a foundation of reality that today's children are quite familiar with: the world of exploration of real space, which is based on real science, and is open equally to boys and girls.

Space Ship: built of bits and pieces of this and that – hubcaps, exhaust pipes, colorful wastebaskets that glow from inside, computer keyboards and joysticks – it is a home-made spaceship that can be sailed into journeys of the imagination. There are extra pieces, (including aluminum foil and pipe cleaners) both for doing repairs and making instant improvements. Inside, old computer keyboards and monitors, digital alarm clocks, glowing buttons, chasing LED lights and switches galore define the command center, along with some comfy lean-back seats. There are space suits, of course, which look like mechanics' coveralls and puffy ski-type space gloves, too.

Mission Control: includes a videophone to speak to the command center in the space ship; lots of computer screens and keyboards; knobs and buttons. One button starts a countdown from 10 to zero and shows a real NASA blastoff of a Space Shuttle on a small screen. Other buttons form a matching puzzle where special lights and sounds reward the correct match. Photos of real rockets and space ships (including the one that was shot from Black Rock last summer); star charts and books about real and imaginary space travel decorate the walls. Mission Control can broadcast a song or two to the space ship, including David Bowie's *Space Oddity*.

Space Bubbles: a variety of soap bubble activities will take place in this bubble-shaped dome "planet". Bubble columns at the entrance add to the overall bubble glow. Pictures of bubble experiments done on real space missions add context.

Space Walk: all good space expeditions include a space walk, and there are canvas-covered Styrofoam cooler 'backpacks' and puffy winter boots and perhaps even some space aliens to find among glowing orbs and shooting stars. Thin, wispy clouds glowing electric blue are overhead in one corner. These noctilucent (or 'night-shining') clouds hover on the edge of space and are very beautiful. A robotic arm helps collect space rocks, and also helps make repairs to the space ship.

Space Experiments: For the older crowd, figure out how much you would weigh on other planets, or how much a can of coke would weigh... and how about how old you are on other planets? (an earthling who is 4 and 1/2 years old would be 18 and 1/2 on Mercury!). Depending on where in the world the moon is seen, the "Man in the Moon" looks like a leaping rabbit.

Visitors can read a factoid about this observation and turn a wall-mounted image of the full moon to see this phenomenon.

Constellations: Visitors can hold up laminated sheets of black paper that have been punched with holes in the formation of various constellations, such as Orion, the Big and Little Dipper, Pegasus, and Scorpio to an x-ray light box. The light box provides a bright light to shine through the holes so the constellation shape can be seen. A chart next to the light box shows the constellations in the night sky.

Space Sculpture: Rearrange the order of the universe by fiddling with the stars, moons, meteors, comets, spaceships and satellites on this large magnetic sculpture. Similar to the little desk-top magnetic sculptures that have loads of little metal shapes set on a magnetic base, but much, much bigger (though not big enough to pose a health hazard), visitors of all ages will have fun creating an ongoing space odyssey. A wall-mounted magnetic surface is available for the youngest visitors to arrange and rearrange magnetic stars, planets, and spacecraft that glow and sparkle.

53

How Visitors May Use Space Odyssey				
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Sensorv	Problem solving	Inquiring and	Interpreting and	Partners in
exploring		experimenting	understanding	play
•experience	•experience sensory	•experience and	•experience and explore	•experience
sensorv maze	maze independently	explore sensory maze	sensory maze	sensorv maze:
with assistance	C,F,G,S,SE	independently; look at	independently; read	observe
from older child		signage C,F,G,L,S,SE	signage; assist younger	children; assist
or adult C,S			children as needed	children as
			C,F,G,L,S,SE	needed
 look at spaceship 	 look at spaceship; 	•engage in sustained,	•engage in sustained,	 play alongside
and props S	engage in sustained	detailed role play and	detailed role play and	children;
	role and imaginary	dramatic play; wear	dramatic play; assign	answer
	play; try on space	space costumes	roles; direct play	questions,
	costumes	C,F,G,L,S,SD,SE	C,F,G,L,S,SD,SE	facilitate play
	C,F,G,L,S,SD,SE			•
•touch keyboards	•use props and	•use props and engage	•engage in sustained,	•communicate
and other props S	engage in role play;	in sustained, detailed	detailed role play and	via video
	use video phone to	role play and dramatic	dramatic play; assign	phone with
	CECLS SD SE	to communicate with	foles video phone to	space ship or
	C,F,O,L,S,SD,SE	spaceship	on spaceship	space ship of
		C E G L S SD SE	C F G I S S D S F	control: enjoy
		C,I,O,E,O,D,OE	C,1,0,L,5,5D,5L	nlaving along
•push button:	•push button: watch	•push button: watch	•push button: watch	•watch NASA
watch NASA	NASA blastoff;	NASA blastoff;	NASA blastoff; pretend	blastoff
blastoff F,S	pretend to be	pretend to be	to be launching Space	
,	launching Space	launching Space	Shuttle C,F,L,S,SD,SE	
	Shuttle	Shuttle C,F,L,S,SD,SE		
	C,F,L,S,SD,SE			
•press button on	•attempt to complete	•complete matching	•complete matching	•provide
puzzle interactive;	matching interactive	interactive C,F,L,S,SE	interactive; assist younger	assistance to
look at lights;	C,F,L,S,SE		children as needed	children as
listen to sounds			C,F,L,S,SE	needed
F,L,S	1 1 4 1 4 1			
•look at	•look at photographs	•look at and identify	•look at and identify	•look at
photographs S	and recognize as	photographs of space	photographs of space	photographs
-11	space craft C,S,SE	craft C,L,S,SE	craft C,L,S,SE	ale als at star
•look at star	•look at star charts;	•look at star charts;	•look at star charts;	•look at star
charts 5	charts represent	constellations	familiar stars and	charts, identify
	stars in the sky	CLSSE	constellations C L S SE	explain to kids
	C L S SE	C,L,5,5L	constenations C,E,S,SE	explain to Klus
•look at books S	•look at books S	•read books C L S SE	•read books C L S SE	•read books
•listen to music S	•listen to music S	•listen to music S	•listen to music S	•listen to music
•look at and touch	•play with bubbles	•interact with bubbles	•interact with bubbles	•play with
bubbles C,F,S	C,F,S	C,F,S	C,F,S	bubbles
•touch various	•pick up and feel	•compare weights of	•compare weights of	•compare
soda cans S	weight of various	various soda cans	various soda cans;	relative
	soda cans F,S,SE	C,F,L,S,SE	understand relative	weights of
			weights and time on	cans
			different planets	
			C,F,L,S,SE	

How Visitors May Use Space Odyssey, continued				
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Sensory	Problem solving	Inquiring and	Interpreting and	Partners in
exploring		experimenting	understanding	play
•spin wall- mounted moon F,G,S	•spin moon; attempt to identify man in the moon and rabbit; listen to factoid C,F,G,L,S,SE	•spin moon; attempt to identify man in the moon and rabbit; listen to factoid C,F,G,L,S,SE	•spin moon; identify man in the moon and rabbit; listen to factoid C,F,G,L,S,SE	•read factoid to self and others; spin moon; attempt to identify man in the moon and rabbit
•look at bright light from x-ray light box S	•hold up constellation sheets to light; look at constellation patterns; look at poster C,F,L,S,SE	•hold up constellation sheets to light; look at constellation patterns; look at poster; compare poster images to constellation patterns on sheets C,F,L,S,SE	•hold up constellation sheets to light; look at constellation patterns; recognize some constellations; look at poster C,F,L,S,SE	•look at constellation patterns using light box; look at poster C,F,L,S,SE
•look at and touch magnetic pieces; pull magnetic pieces on and off magnetic wall; watch pieces glow F,S	•move and rearrange pieces on magnetic sculpture C,F,S,SE	•interact with magnetic sculpture; recognize planets and other component pieces C,F,L,S,SE	•interact with magnetic sculpture; move pieces with deliberation;, recognize planets and other component pieces C,F,L,S,SE	•move pieces of magnetic sculpture;

Cognitive = C: Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity

<u>Fine Motor = F:</u> Using hands and fingers, eye-hand coordination

<u>Gross Motor = G;</u> Using arms and shoulders, legs and feet

Language/Literacy = L: Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers

<u>Sensorial = S:</u> Touching, tasting, smelling, hearing, looking

<u>Social-Dramatic = SD</u>: Role-play, imagination, drama <u>Social Emotional = SE</u>: Self-concept, independence, interdependence, relationships, turn-taking, sharing,

negotiating, leading, following, understanding of diversity



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Mary Sinker

Space Odyssey



Cloud Climber

We have not wings we cannot soar; but, we have feet to scale and climb, by slow degrees, by more and more, the cloudy summits of our time.

Henry Wadsworth Longfellow

Rationale

Children spend much of their time moving. It is a developmental imperative, to gain control of their bodies, to become agile and to feel confident moving themselves through space. Mastering the many ways their bodies move is compelling, challenging and, quite literally, helps them grow. A well-designed gross-motor environment not only encourages children to test and develop their bodies in active play, but also fosters creativity, encourages imaginative play, promotes social interaction and cooperation and offers learning opportunities.

Because of its soaring spread, the *Cloud Climber* will offer children a unique outdoors-inside environment with abundant opportunities for movement and unique examination and analysis of a variety of artifacts and elements ranging from simple to complex. As they find their way through the climber, crawl and climb, investigate and explore, they will take great pleasure in a vast range of sensory experiences and challenges by figuring out how to both move through and control this special environment.

Because today's children often miss out on the roaming and rambling in their neighborhood that earlier generations were able to do, they appreciate the opportunity to engage in real exploration of a novel environment. Not only are there important 'mind-maps' that are formed as one moves through space, but there is also a sense of being risky and adventurous – a real character-builder.

Goals

- •To encourage children's gross motor development and foster exploration and problem solving.
- •To provide an opportunity for risk-taking within a safe surrounding
- •To offer way-finding opportunities in a novel environment

Learning Outcomes

Through play in the exhibit components and associated activities, children will:

- •employ gross-motor skills
- •learn to use physical activity as a catalyst to problem solving
- •collaborate with others to reach a shared goal
- •experience controlled risk-taking opportunities
- •build mental maps of where they have come from and plan where they are going

Description

Many children's climbing structures resemble the critter-trails that are found in hamster cages. Harshly colored tubes combined with slides and ball pits and mesh boxes create a chaotic environment. Children's play in these structures is often less than optimal.

Nevada Discovery Museum will incorporate one of the unique climbing structures created by Tom Luckey. Luckey climbers combine natural forms, inherent beauty and architecture to create exceptional spaces where children take risks within safety, make their own adventures, feel bold and competent, and have good old-fashioned fun. At the *Cloud Climber*, children seek out opportunities for exploration and trailblazing inside this spectacular sculptural climber, which feels risky but is as safe as can be. The soaring, cloudy summit stretches to the very top of the ceiling above the mezzanine in some places, and swoops down to overlook the water exhibit in others, layering and overlapping, curling and seeming to float in the space. The climber takes its design inspiration from the natural world, with colors that seem to echo local hills and mountains, rising into blue skies, cloud forms, and even reflected sunset colors.

Adults and children alike easily climb the Cloud Climber's many levels. There are many points of divergence – and lots of places to come together. Figuring out where the various forms go is the first challenge. Finding a way back – or, perhaps, *choosing* a way back – helps intrepid explorers feel confident.

The climber invites visitors to interact with one another... or to find a quiet spot and sit in an overlook and take in the scenery. Talking tubes (or even telephones) allow explorers to speak to one another, or perhaps with a parent on the ground. An electronic interactive says "hello" in many different languages including Paiute, Spanish, Chinese, Basque, and other languages that represent the various ethnic groups in the area.

While climbing, there are discoveries to be made: here a petroglyph and there a pictograph; hiding up in contextually appropriate corners and nooks are native animals or birds making their own unique sounds; over there in a cozy corner are some books about cloud formations. Sounds and featured animals and plants vary with the elevation, and echo the reality of local flora and fauna.

How Visitors May Use Cloud Climber				
Age 0-2 Years Sensory exploring	Age 3-5 Years Problem solving	Age 6-8 Years Inquiring and experimenting	Age 9-12 Years Interpreting and understanding	Adults Partners in play
•look at climber C,S	•look at climber C,S	•look at climber and notice similarity to clouds C,S,SE	•look at climber; recognize cloud similarities and cloud types C,S,L,SE	•look at climber
•crawl in, pull to stand, climb in, explore area of climber for the youngest children C,G,S	•climb in and explore climber C,G,S,SE	•climb in and explore climber independently C,G,S,SE	•climb in and explore climber independently C,G,S,SE	•climb in and explore climber; observe children and help as needed
•look out at others from climber C,S	•look at and notice the other parts of the museum from climber C,S	•notice various views of museum from different areas of the climber while climbing C,S,SE	•look various areas of museum from different heights of the climber while climbing C,S,SE	• look at various areas of museum from various heights from inside climber
•watch other children in climber C,S	•interact with other children while in climber C,L,S,SE	•interact and problem- solve with other children while in climber C,L,S,SE	•interact and problem- solve with other children while in climber C,L,S,SE	•talk with other adult caregivers while observing children

At the base of the climber is a 'map' of the climber. Alongside is a blackboard where children can plot their own journey – either before they set off, or after they have returned to earth.

How Visitors May Use Cloud Climber, continued				
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Sensory	Problem	Inquiring and	Interpreting and	Partners in
exploring	solving	experimenting	understanding	play
 •put ear near talking tubes to hear voices C,S,SE •listen to "Hello" interactive L,S 	 •use talking tubes to listen to and talk to others C,S,L,SE •listen to "Hello" interactive; recognize words as languages different than English or Spanish; attempt to repeat different languages C,L,S,SE 	 use talking tubes to communicate with others; figure out where they might be in climber C,S,L,SE listen to "Hello" interactive; recognize words as languages different than English or Spanish; repeat different languages C,L,S,SE 	 use talking tubes to communicate with others; figure out where they might be in climber C,S,L,SE listen to "Hello" interactive; recognize words as languages different than English or Spanish; identify different languages; repeat different languages C,L,S,SE 	 use talking tubes to listen to and talk to children listen to "Hello" interactive; recognize different languages
•look at and listen to props in climber S	•look for, listen to, identify props in climber C,S,L,SE	•look at, listen to, identify, recognize the significance of props in climber C,S,L,SE	•look at, listen to, identify, understand the significance of props in climber C,S,L,SE	•look at and listen to props
•look at map S	•look at map and recognize climber C,S	•look at map; recognize climber and surrounding galleries C,L,S,SE	•look at map: recognize climber relative to other proximal areas and galleries C,L,S,SE	•look at map
•grab chalk and put marks on blackboard C,F,S	•draw lines and other forms on blackboard and pretend it is a map C.F.L.S.SE	•draw map of climber recalling many details of personal trail C,F,L,S,SE	•draw accurate map of climber indicating personal path through climber C,F,L,S,SE	•provide assistance as needed with map- reading

<u>Cognitive = C:</u> Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity <u>Fine Motor = F:</u> Using hands and fingers, eye-hand coordination

<u>Gross Motor = G</u>; Using arms and shoulders, legs and feet <u>Language/Literacy = L</u>: Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers <u>Sensorial = S:</u> Touching, tasting, smelling, hearing, looking

<u>Social-Dramatic = SD</u>: Role-play, imagination, drama

Social Emotional = SE: Self-concept, independence, interdependence, relationships, turn-taking, sharing, negotiating, leading, following, understanding of diversity



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Cloud Climber

Mary Sinker



Comstock Lode Mining

Bell, book, and candle, shall not drive me back, when gold and silver becks me to come on. William Shakespeare

Rationale

Mining is part of Nevada's past and present. It is part of what defines Nevada. And, although almost everything in the urban environment is made from rocks and minerals, most people make little connection with what the original raw material actually looks like. The *Comstock Lode Mining* exhibit is designed to give people an 'in-the-mine' experience that will help them learn something about the rocks and minerals that are so much a part of Nevada

Goal

To provide visitors with a hands-on experience of mining that conveys an insight and understanding of what mining is all about.

Learning Opportunities

Through play in the exhibit components and associated activities, children will:

- •experience some of the sights, sounds, textures and smells of mining underground
- •become aware of the many modern uses for Nevada's minerals
- •express wonder and ask questions about their world

Description

In 1859, vast deposits of gold and silver were discovered in the area that is now Virginia City, Nevada. The Comstock Lode, named after Henry P. Comstock who laid claim to this area, was the richest deposit of silver ore ever discovered in the United States. *Comstock Lode Mining* is part of the history of Nevada, and may be accessed from *Nevada Stories* but also reaches well overhead where it connects to the *Cloud Climber* as well as having a significant 'underground' presence.

Mining, the process of extracting minerals from the earth that are used for essential products, continues to be an important industry and makes Nevada the leading producer of gold and silver in the United States. Today, gold is used for jewelry, dentistry, electrical connections for computers and the space industry, laboratory equipment, some specialized medical treatments, and optics. Silver is used for photography and film, medications, electrical appliances, automotive parts, refrigeration equipment, jewelry, silverware, and coins. Wall-mounted pictures show modern uses.

In the Mine: A darkened area that heightens sensitivities, *Comstock Lode Mining* offers fascinating insight into the world of mining. Upon entering the *Comstock Lode Mining* area, visitors feel a noticeable rise in the ambient temperature (room temperature set to approximately 85 degrees) simulating the increase in temperature felt in Nevada mines caused by the close proximity of mines to underground lava and geothermal heat. Visitors put on safety helmets with working spotlights, jumpsuits, work gloves, tool belts, and safety goggles and push a mining cart into a small mine to discover rocks, minerals, and even a few fossils that are in the soil.

Sort and Classify: Once the cart is filled, young miners can empty their cart onto a table and sort and classify the different rocks by size, color, and type. A chart provides assistance with rock identification. They can weigh the rocks on a pan balance scale and record the weights on a chalkboard using a tethered piece of chalk. A hand-operated conveyor belt helps miners return their rocks to the mine area.

Rock Trading Post: Visitors are invited to bring a rock from home and trade it for another at the mine's trading post. A bilingual chart with labeled pictures helps to make rock identifications. While contemplating which rock to take, visitors can play a matching-game to learn the names of some 'native' rocks and find the one that plays rock music!

Rock Building: Outside the mine entrance is a pile of faux rocks that can be used to build structures, bridges, and other creative items.

Puppets: Next to the mine entrance is a small open area that is framed to look like a miner's home that is perfect for puppet shows, storytellers, sing-alongs, and other performances. Wooden benches ringing this area provide comfortable seating for people watching the show – or just hanging out in the amazing environment!

How Visitors May Use Comstock Lode Mining				
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Sensory	Problem	Inquiring and	Interpreting and	Partners in
exploring	solving	experimenting	understanding	play
•look at posters S	•look at posters about modern uses of gold and silver C,L,S	•look at posters; recognize images of modern uses of gold and silver C,L,S,SE	•look at posters; recognize images of modern uses of gold and silver C,L,S,SE	•look at posters of modern uses of gold and silver
•feel warmer temperature in mine C,S	•notice warmer temperature in mine C,S	•notice warmer temperature in mine C,S	•notice warmer temperature in mine; recognize reason for change in temperature C,L,S,SE	•notice warmer temperature in mine
•touch and try to put on miner's gear; pick up rocks, minerals, fossils C.F.S	•put on miner's gear,push cart into mine; find rocks, minerals, fossils C.F.G.S.SD.SE	•put on miner's gear and push cart into mine; find rocks, minerals, fossils C.F.G.S.SD.SE	•use light on miner's hat to help locate rocks, minerals, fossils in cave C,F,G,S,SD,SE	•help children put on miner's gear; put on own gear; find rocks, minerals, fossils
•find and pick up rocks and fossils C,F,G,L,S	•find rocks and fossils; put into mine cart C,F,G,L,S,SD,SE	•find rocks and fossils; put into mine cart; transport to sorting area C,F,G,L,S,SD,SE	•find rocks and fossils; put into mine cart; transport to sorting area C,F,G,L,S,SD,SE	•look at rocks and fossils; help children to transport rocks
•look at rocks/minerals on chart S	•look at and compare rocks and minerals to chart C,L,S,SE	•compare, classify , and match rocks and minerals to those on chart C,L,S,SE	•identify rocks and minerals using chart for information C,L,S,SE	•look at rocks and minerals identification chart
•look at pan scale; try to pick up weights C,F,G,S	•put rocks and other items on scale to weigh them	•weigh rocks on pan scale; record weights C,F,G,S,L,SE	•weigh rocks on pan scale; record weights C,F,G,S,L,SE	•weigh rocks, help record weights
•touch crank on conveyor belt F,S	•put rocks on conveyor belt; turn crank to move, with help if needed C,F,G,L,S,SD,SE	•put rocks on conveyor belt; attempt to turn crank to move conveyor belt C,F,G,L,S,SD,SE	•put rocks on conveyor belt; turn crank to operate conveyor belt C,F,G,L,S,SD,SE	•help with rock sorting and return

How Visitors May Use Comstock Lode Mining, continued				
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults
Sensory	Problem	Inquiring and	Interpreting and	Partners in
exploring	solving	experimenting	understanding	play
•go into trading	 take a rock from 	 trade a personal rock 	 trade rocks and 	•participate with
post G,S	the trading post	at trading post	understand concept of	trading post, if
	C,F,G,S,SE	C,F,G,S,SE	trading goods for	desired; help kids
			needed/wanted goods	
1 1 4 1 1 4	1 1 4 1 1 4	11'1' 1	C,F,G,L,S,SE	1 1 4 1 4
•look at rock chart	•look at rock chart	•read bilingual names	•read bilingual rock	•look at chart,
S	and try to match	of rocks; match rocks	chart; identify rocks at	identify rocks;
	rocks to pictures	to chart C,L,S,SE	trading post C,L,S,SE	provide assistance
	C,L,S,SE			as needed
 listen to rock 	 play with rock 	 play rock matching 	 play rock matching 	 identify rocks;
music S	interactive and	game; listen to rock	game; identify rocks;	listen to rock
	listen to rock music	music C,F,L,S,SE	listen to rock music	music
	C,F,S,SE		C,F,L,S,SE	
•crawl over and	•use faux rocks for	•build structures with	•plan and build	•help with
touch faux rocks	building	faux rocks C,F,G,S,SE	structures with faux	building with faux
C,F,G,S	C,F,G,S,SE		rocks C,F,G,S,SE	rocks
 look at 	•observe and	•observe and	•observe and	•observe
performances	participate in	participate in	participate in	performances;
given in	performances in	performances in	performances in	provide assistance
performance area	performance area	performance area	performance area	to children as
Ċ,S	C,F,G,L,S,SE	C,F,G,L,S,SE	C,F,G,L,S,SE	needed

Cognitive = C: Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity

Fine Motor = F: Using hands and fingers, eye-hand coordination

 $\overline{\text{Gross Motor} = G}$; Using arms and shoulders, legs and feet

Language/Literacy = L: Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers

<u>Sensorial = S:</u> Touching, tasting, smelling, hearing, looking

<u>Social-Dramatic = SD</u>: Role-play, imagination, drama <u>Social Emotional = SE</u>: Self-concept, independence, interdependence, relationships, turn-taking, sharing, negotiating, leading, following, understanding of diversity



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Comstock Lode Mining


Under the Stars

No man should go through life without once experiencing healthy, even bored solitude in the wilderness, finding himself depending solely on himself and thereby learning his true and hidden strength. Jack Kerouac

Rationale

Most children love going camping. They appreciate the differences from their regular lives, the more casual way of doing things, the close proximity to nature – and the family togetherness. Although it is indoors, *Under the Stars* brings families into an indoors-outdoors, encouraging their curiosity by offering opportunities for active exploration and participation in rich sensory experiences. A myriad of imaginative and cooperative play opportunities are layered atop the natural environment in this special campground, inviting children to share, take turns, lead, follow, negotiate, and create and act-out mini-dramas.

Goal

To provide an 'indoor-outdoors' experience for visitors

Learning Opportunities

Through play in the exhibit components and associated activities, children will:

- •use their imaginations to play out both familiar and unfamiliar roles and experiences
 - •use senses to explore and observe materials and natural phenomena
 - •investigate and categorize living things in the environment
 - •cooperate with other visitors in allocating and sharing materials

Description

An offshoot of the *Cloud Climber*, *Under the Stars* is a camping area nestled beneath the climber, with the look and feel of a Nevada campground. Campers sit on a low log bench in front of two small tents and use cooking implements to cook the catch of the day for dinner over the faux campfire, complete with glowing, flickering orangey silk flames that are activated by a proximity switch. A picnic table enhances the opportunity for acting out a camping adventure.

Campers may pivot themselves on the log bench to face away from the tents and campfire for storytelling, sing-alongs, magic shows, and other small performances.

Loose materials (peeled-bark tree branches, canvas, pieces of rope) offer an opportunity to build a more rustic shelter. Animal sounds and birdcalls invite exploration. Nearby, a faux stream with a real kayak is waiting. Small, bright orange life jackets are available. Fishing poles with magnetic "hooks" can be used to catch fish. These fish can be carried to the campsite in a cloth bucket, ready for cooking on the campfire.

A hollowed out tree stump with shelves holds books about the geography of Nevada, the flora and fauna of Nevada, camping adventures, and stories about being in the wilderness.

Alongside the camping area is a typical park map (bilingual) that shows where the camp is in relation to the climber and where some of the various climber 'treasures' can be found. Next to this is a blackboard where children can draw their own maps, plan their adventures, or recall where they went on their trailblazing quest.

How Visitors May Use Under the Stars							
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years	Age 9-12 Years	Adults			
Sensorv	Problem	Inquiring and	Interpreting and	Partners in			
exploring	solving	experimenting	understanding	play			
•look at	•look at	•look at campground;	•look at campground;	•look at			
campground C,S	campground C,S	notice relationship to	notice proximity and	campground			
		climber C,S,SE	relationship to climber				
			C,S,L,SE				
•pull up onto and	•sit on log bench	•sit on log bench	•sit on log bench	•sit on log bench			
climb over low log	C,G,S	C,G,S	C,G,S	C,G,S			
bench C,G,S	and a damada	and the density		intertente			
•crawl into tents	•go into tents	•go into tents	•go into tents C,G,S,SE	•go into tents			
C,G,S	C,G,S,SE	C,G,S,SE	esit et nienie teble	egit et nienie teble			
•puil to stand on	•sit at picfile table,	in comparound play	G S SE	•sit at picfile table,			
pienie table 0,5	play G S SD SE	G S SD SE	0,5,51	meal			
•watch older	•attempt to build	•work cooperatively	•work cooperatively	•work with kids to			
children build	shelter; assist older	with others to build	with others to build	build a shelter			
shelter S	children	shelter C,F,G,L,S,SE	shelter; problem-solve				
	C,F,G,L,S,SE		and direct building				
			C,F,G,L,S,SE				
•listen to animal	•listen to animal	•listen to, recognize,	•listen to, recognize,	•listen to and			
and bird sounds	and bird sounds	and attempt to identify	and identify animal and	identify animal			
L,S	C,L,S,SE	animal and bird sounds	bird sounds C,L,S,SE	and bird sounds			
alimh anto and	alimh into kovolu	C,L,S,SE	alimh into kovalu nut	stall: about			
•child onto and	•climb into kayak,	•chillo hilo kayak, put	•child into kayak, put	•talk about			
over kayak 0,5	life jacket	to ride kayak in faux	riding kayak in faux	iacket: climb into			
	C.F.G.S.SD.SE	river C.F.G.S.SD.SE	river C.F.G.S.SD.SE	kavak			
•pick up magnetic	•pretend to fish	•pretend to fish using	•assist younger	•pretend to catch			
fish C,F,S	using fishing	fishing equipment and	children; pretend to fish	and to cook fish!			
	equipment and	magnetic fish	C,F,G,L,S,SD,SE				
	magnetic fish	C,F,G,L,S,SD,SE					
	C,F,G,L,S,SD,SE						
•pull books out of	•look at books	•attempt to read books	•read books C,F,L,S,SE	•look at books;			
tree stump; look at	C,F,L,S	C,F,L,S,SE		read to younger			
books C,F,G,L,S	leals at north man	le als at monte mana	.11	children			
•look at park map	•100K at park map	•look al park map;	•look at park map;	•look at park map			
5	С,Е,5,5Е	man: look at location	its provimity to other				
		of treasures on man	exhibits C L S SE				
		C,L,S,SE					
•grab chalk and put	•draw lines and	•draw map of campsite	•draw accurate map of	•draw a map of			
marks on	other forms on	recalling many details	campsite including	the campsite with			
blackboard C,F,S	blackboard and	of personal	details of personal	the kids, or for the			
	pretend it is a map	explorations	experiences C,F,L,S,SE	kids			
	C,F,L,S,SE	C,F,L,S,SE					

<u>Cognitive = C:</u> Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity <u>Fine Motor = F:</u> Using hands and fingers, eye-hand coordination

 $\underline{\text{Gross Motor} = G}$; Using arms and shoulders, legs and feet

<u>Language/Literacy = L</u>: Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers <u>Sensorial = S</u>: Touching, tasting, smelling, hearing, looking

 $\frac{\text{Social-Dramatic} = SD}{\text{Social-Dramatic} = SD}: \text{Role-play, imagination, drama}$ $\frac{\text{Social-Dramatic} = SD}{\text{Social} = SE}: \text{Self-concept, independence, interdependence, relationships, turn-taking, sharing, negotiating, leading, following, understanding of diversity}$

63



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Under the Stars



WaterWorks

In one drop of water are found all the secrets of all the oceans. Kahlil Gibran

Rationale

As children play with water, they *do* science. It is (almost) as simple as that. The formless, free nature of water inspires equally free exploration and discovery. Water is an excellent learning medium for children across a wide range of ages. Whether it is a whole lake-full or just a small cupful from the kitchen sink, water invites the multi-sensory explorations of the very young as well as the problem solving inclinations of older children. As children play with and use their senses to investigate the physical and aesthetic properties of water by directing, diverting, containing and releasing, they are *doing* science. Discovering, exploring and experimenting with water fosters intuitive, curiosity-driven learning.

In addition to pure water play, visitors will have the opportunity to explore many subsidiary activities or particular concern to Reno and environs, including hydroelectric power, conservation, stewardship and irrigation.

Goal

To provide an environment that will encourage children to experiment with water and explore many of its properties.

Learning Opportunities

As they play in the exhibit components and associated activities, children will:

- •explore the physical properties of water
- •use their senses to explore and observe
- •engage in cooperative interaction
- •become aware of water stewardship opportunities

Description

The water exhibit at NDM will both celebrate and investigate water, our most vital resource. Surrounded by a rich wall mural of blues, greens, and tans that highlight the natural beauty and the scenery of Lake Tahoe, the Truckee River, and Pyramid Lake areas, *WaterWorks* provides a multitude of water experiences that reflect the sights, sounds, smells, history, and importance of one of Nevada's most precious resources. Lighting focused on this mural changes over a 30-minute cycle to demonstrate how sunlight and moonlight over a 24-hour period impact the way the countryside looks. A beautiful mosaic design of blue water, fish, aquatic plants, and other fresh water animals appears here on the floor as well as throughout the museum and celebrates the importance of water.

Magnificent Water Table: A two-story wall of gently flowing water cascades into the water table, beginning its journey from Lake Tahoe to Pyramid Lake, via the Truckee River. The lower part of the cascade offers visitors a variety of pegs, partitions, and other ways to harness and channel the flow of water.

The centerpiece of *WaterWorks* is a huge, spectacular, beautiful water table that incorporates three distinct levels representing Lake Tahoe at its highest point, the Truckee River that is

winding, long, narrow and slopes downward into Pyramid Lake, another large pool, complete with its distinctive pyramid-shaped tufa formation in the center. Accessible from all areas, this water table will be enticing to visitors of all ages.

The Lake Tahoe pool is dark blue in color, which makes the water look cold and deep. Boatbuilding materials are available and provide opportunities to experiment with different boat shapes in boat races. Small, mounted blowers can be pointed at the boats to help them move across the water. The water from Lake Tahoe flows into the river section of the water table.

The Truckee River section is paved with Nevada: shimmers of silver, glints of gold, curls of copper; traces of turquoise, angles of agates, bright and sparkly pieces of smooth glass that are all the different colors of quartz, large chunks of turquoise, iridescent opals, and all of the other rocks and minerals that are native to Nevada. Upon closer inspection, other miniature treasures can be spotted in the water including cui-ui fish (spelled "kooeyooe" in Paiute), magnetic trout, ichthyosaur fossils, gold coins, and other surprises. A beautiful bronze trout is permanently positioned to be leaping out of the river. Rocks and other natural materials provide opportunities to build dams and create waterfalls. Sieves can be used to try to pan for treasures. Fishing gear including magnetic fishing poles, nets, and even fly fishermen vests can be used to catch some magnetic river trout. This river water flows into the lower large pool of water.

The Pyramid Lake Pool is inviting for the museum's youngest visitors. Floating white pelicans can be splashed and pushed along the water. A large supply of water toys including funnels, pails, spoons, measuring cups, colanders, water wheels, turkey basters, eye droppers, and other enticing water play materials provide endless opportunities for experimentation and discovery. Fishing nets can be used to catch colorful fish and other lake dwellers. Plastic aprons, just right for keeping clothes dry, hang on wall hooks near the water table. A couple of electric hand driers next to the apron hooks invite children to dry off before exploring another area of the museum.

Additional displays and interactive activities are available around the perimeter of *WaterWorks*. These include:

Water stewardship: Water stewardship is an important consideration for today's children. Here, several interactives help visitors understand how they waste water. For example, a video of a child brushing her teeth for two minutes is next to a faucet with the water running, sending the water into a calibrated tank. Visitors can see how much water they waste by running the water when they are brushing their teeth – and can then try turning the water on and off to see the difference it makes. Another interactive shows how much water is wasted over time by a dripping faucet and leaking toilet. A *water bank* ATM machine records the amount of water that is saved by these simple, water-saving practices.

Hydroelectric power: Visitors can investigate hydroelectric power, too. A side area leading off the river includes a hydroelectric generator, which demonstrates how hydroelectric turbines generate electricity. (Interestingly, the Virginia City electric distribution system - Nevada's first - was one of only a handful nationwide designed by genius inventor Thomas Alva Edison.)

Water cycle: High in the Sierra Nevada Mountains, Lake Tahoe is the largest and seconddeepest alpine lake in North America. As snow melts from the Sierra Nevada Mountains, it provides the water that supplies Lake Tahoe and then down the Truckee River and into Pyramid Lake. Using a snow cone machine to create "snow", a child-powered exhibit component demonstrates how this snow-to-Pyramid Lake process occurs.

Irrigation: A wall-mounted interactive invites visitors to learn about the importance of irrigation as they operate a pump and direct water through transparent water pipes and valves to move water through an enclosed irrigation display.

Cui-ui fish: Pyramid Lake is the only lake in the world that is home to the endangered cui-ui (kooeyooe) fish. A life-sized model of a cui-ui and interesting facts about this fish provide information on how cui-ui are being protected and helped to increase in number. One factoid offers the proper pronunciation of kooeyooe.

Tufa: Wall-mounted photographs show a variety of interesting tufa formations, including the large, unique pyramid tufa formation in Pyramid Lake. Factoids here describe how tufa formations occur. A counter-mounted interactive in front of this photographic display has synthetic "tufa" pieces that can be stacked together to create different tufa formations, limited only by the builder's imagination.

How Visitors	How Visitors May Use <i>WaterWorks</i>							
Age 0-2 Years	Age 3-5 Years	Age 6-8 Years Inquiring and	Age 9-12 Years Interpreting and	Adults Partners in				
Sensory	Problem	experimenting	understanding	play				
exploring	solving			1 0				
•look at mural C,S	•look at mural C,F,S	•look at mural; notice landscape C,F,S	•look at mural; recognize landscape and bodies of water C,F,S	•look at mural				
•look at lighting C,S	•look at lighting and notice that it changes C,S,SE	•notice changes in lighting and how the lighting impacts the look of the mural C,S,SE	•notice changes in lighting and watch how the lighting of the day/night cycle impacts the look of the countryside in the mural C,S,SE	•notice changes in lighting				
•look at mosaic in floor S	•look at and recognize objects in mosaic in floor C,L,S,SE	•recognize and name objects in mosaic in floor C,L,S,SE	•recognize and identify objects in mosaic, understand relationship of mosaic to exhibit C,L,S,SE	•look at mosaic in floor				
•look at water table C,S	•look at and notice the configuration and beauty of the water table; C,S	•notice 3 components of water table and cascading water; appreciate beauty of it C,S,SE	•look at configuration and beauty of water table and representation of Lake Tahoe, Truckee River and Pyramid Lake C,S,SE	•look at configuration and beauty of water table, relate to known geography				
•look at and touch water wall C,F,S	•touch water wall, use pegs and other materials to divert water flow C,F,L,S,SE	•interact with water wall, use all materials to divert and channel water flow C,F,L,S,SE	•interact with water wall, use all materials to divert and channel water flow with intent C,F,L,S,SE	•interact with water wall, diver and channel water; help kids as needed				

66

How Visitors May Use <i>WaterWorks, continued</i>							
Age 0-2	Age 3-5	Age 6-8 Years	Age 9-12 Years	Adults			
Years	Years	Inquiring and	Interpreting and	Partners in			
Sensorv	Problem	experimenting	understanding	play			
exploring	solving	- F		rJ			
•look at boats	•watch boats	•build boats and use	•plan and build boats, use	•participate in boat			
in water C,S	moving over	blower to push boats	blower with intent to	races			
	water C,S	along water C,F,S,SE	move boat along water				
			C,F,S,SE				
 look at and 	•look at, touch,	 look at, touch, identify 	 look at, touch, identify 	identify objects in			
touch water	identify objects	most of the objects in	all objects in river section	water			
and shiny	in river section	river section of water	of water table C,F,L,S,SE				
objects in river	of water table	table C,F,L,S,SE					
section of	C,F,L,S,SE						
water table							
C,F,S	algebrat and	algola at and identify	alcoly a identify and note	eodusino issumnino			
•100K at	•100K at and identify jumping	•100K at and identify	•look a, identify, and note	•admire jumping			
sculpture C S	trout sculpture	C S L SF	trout sculpture C S L SF	tiout sculpture			
seupture e,s	C S L SE	0,0,1,01					
•grab fish toys	•use fishing	•use fishing poles to	•use fishing poles to catch	•observe children;			
in water C,F,S	poles to catch	catch magnetic fish	magnetic fish C,F,G,S,SE	provide assistance			
	magnetic fish	C,F,G,S,SE		as needed			
	C,F,G,S,SE						
•watch older	•attempt to	•use various materials	•build various dams and	•build dams; try and			
children C,S	create dams with	to build different types	observe how water flow	slow/stop water			
	props C,F,S,SE	of dams C,F,S,SE	can be slowed and	flow			
			stopped C,F,S,SD				
•use sieve to	•use sieve to pan	•use sieve to pan for	•use sleve to capture	•use sieve to pan for			
C F S	river C E S SE	river C F S SF	note significance of these	materials			
0,1,5	11ver C,1 ,5,5L	11001 C,1,5,512	items C F S L SE				
•explore	•use water tovs	•use water tovs in lower	•watch voungest children	•help voungest			
sensory	in lower water	water table C,F,S	play in low water table	children as needed			
experience of	table C,F,S		Ċ,Ś				
waster in lower							
Pyramid River							
water table							
with and							
without water							
toys C,F,S			ilentif, and mate	:1			
•grab pelicans	•play with	•recognize pelicans and	•identify and note	•identify pelicans to			
and fish in	in water table	during water play	and fish in water table	youngest children,			
CES	C F S	C F L S SF	C S L SF	explain significance			
•look at aprons	•put on aprons	•use approves to protect	•use approves to protect	•help kids with			
have apron put	independently	clothing C.F.S.SE	clothing C.F.S.SE	aprons			
on by adult or	C,F,S,SE						
older child S	, , ,						
•feel blowing	•operate and use	 operate and use hand 	•operate and use hand	 help children with 			
air from hand	hand dryers	dryers C,F,S	dryers C,F,S	their drying needs			

dryers S

C,F,S

How Visitors May Use <i>WaterWorks</i> , continued 6					
Age 0-2	Age 3-5	Age 6-8 Years	Age 9-12 Years	Adults	
Years	Years	Inquiring and	Interpreting and	Partners in	
Sensory	Problem	experimenting	understanding	play	
exploring	solving		8	1 0	
•look at water from faucet C,F,S	•watch water running into tank from faucet C,S	•notice amount of water that goes into calibrated tank during teeth brushing video C,L,S	•notice amount of water that goes into calibrated tank during teeth brushing video; compare and contrast amount of water that is used/saved during teeth brushing video C,L,S,SE	•notice amount of water that goes into calibrated tank during teeth brushing; appreciate amount of water that is saved by turning off faucets	
•grab faucet handle C,F,S	•turn faucet handle off and on C,F,S,SE	•turn off faucet to stop water from dripping C,F,G,S,SE	•turn off dripping faucet; notice amount of water saved C,F,G,S,SE	•notice amount of water saved by stopping a dripping faucet	
•look at toilet S	•look at leaking toilet, notice that water is being wasted C,L,S,SE	•notice amount of water wasted by leaking toilet C,L,S,SE	•notice amount of water wasted by leaking toilet C,L,S,SE	•notice amount of water wasted by leaking toilet	
•look at and touch water ATM C,F	•look at number representation of amount of water saved in water ATM C,L,S,SE	•notice and appreciate amount of water saved by simple water-saving practices C,L,S,SE	•notice and appreciate amount of water saved by simple water-saving practices C,L,S,SE	•notice and appreciate amount of water that can be saved; consider applying at home	
•look at photographs S	•look at photographs and interactive about hydroelectric power C,L,S	•look at photographs and interactive about hydroelectric power C,L,S	•interact with display on hydroelectric power, realize importance of water as energy source, C,L,S,SE	•interact with hydroelectric power display	
•look at snow made by snow cone machine S	•use snow cone machine to make snow for snow to water interactive C,F,L,S,SE	•use snow-to-water interactive and watch how snow provides water for the Tahoe, Truckee, Pyramid water system C,F,L,S,SE	•use snow-to-water interactive and understand how snow provides water for the Tahoe, Truckee, Pyramid water system C,F,L,S,SE	•understand and interpret snow-to- water/water-cycle interactive	
•look at water going through colored tubes S	•operate pump to push water through colored tubes C,F,S,SE	•operate pumps and watch water go through irrigation pipes C,F,S,SE	•operate pumps and watch water go through irrigation pipes with understanding of and appreciation for irrigation C,F,L,S,SE	•play with irrigation interactive, explain to children	
•look at and touch model of cui-ui fish S	•look at and touch model of cui-ui fish S	•look at model and read factoids about endangered of cui-ui fish C,L,S	•look at model and understand factoids about endangered of cui-ui fish C,L,S	•read facts about endangered cui-ui fish	
•look at tufa formation photographs S	•look at tufa formation photographs S	•took at and recognize tufa formation photographs and read factoids about tufa formations C,L,S,SE	•took at and recognize tufa formation photographs and read factoids about tufa formations C,L,S,SE	•look at photographs; read information about tufa formations	

How Visitors May Use WaterWorks, continued							
Age 0-2 Years Sensory	Age 3-5 Years Problem	Age 6-8 Years Inquiring and experimenting	Age 9-12 Years Interpreting and understanding	Adults Partners in play			
exploring	solving						
•grab and hold	•use tufa	 use tufa building 	•use tufa building	•build tufa			
tufa building	building	materials to build	materials to build	formations; look at			
materials F,G,S	materials to	structures similar to	structures similar to	photographs			
	build structures	photographs of tufa	photographs of tufa				
	C,F,G,S,SE	formations in nature	formations in nature				
		C,F,G,S,SE	C,F,G,S,SE				

<u>Cognitive = C:</u> Thinking, identifying, reasoning, problem-solving, planning, following directions, calculating, creativity

<u>Fine Motor = F:</u> Using hands and fingers, eye-hand coordination

<u>Gross Motor = G;</u> Using arms and shoulders, legs and feet

Language/Literacy = L: Speaking, listening, listening with understanding, reading pictures, words, sentences, pages, numbers

<u>Sensorial = S:</u> Touching, tasting, smelling, hearing, looking

<u>Social-Dramatic = SD</u>: Role-play, imagination, drama

<u>Social Emotional = SE:</u> Self-concept, independence, interdependence, relationships, turn-taking, sharing,

negotiating, leading, following, understanding of diversity



Program Rooms

It is paradoxical that many educators and parents still differentiate between a time for learning and a time for play without seeing the vital connection between them. Leo Buscaglia

Rationale

Museum exhibits involve visitors in learning through three-dimensional forms, in carefully structured environments. Museum programs support, augment and extend the museum's exhibits. Museum staff, community partners and volunteers from all walks of life (including children) are the *animators* of museum programs. Programs are designed to closely meet the needs of target audiences.

Sharing the same philosophy as museum exhibits, programs are child-focused activities that recognize different pathways to learning, are structured to nurture children's natural sense of curiosity, and add to the life of the museum. All educational programming celebrates the beautifully interdisciplinary nature of learning and at the same time appreciates the power of play in the learning process.

In addition to in-exhibit space for small groups and impromptu activities, three program rooms and a multi-purpose room will serve the museum's programming needs.

Goal

To provide well-equipped rooms for museum programming specifically related to multi-media, arts and science.

Learning Outcomes

Through guided program experiences, visitors will

- •try, experiment, discover
- •invent and create
- •feel successful and capable

Description

Each program room is designed to be as flexible as possible, with opportunities for set-ups that include tables and chairs, rows of chairs, single, expanded table and chairs or benches, etc. Storage for tables and seating is built into the room, making it easy for museum staff to ready the room for a program. While the rooms will serve diverse purposes, each will have a distinct identity, as described below:

The *Media Lab* is home to a state of the art technology center that invites visitors to experiment with multi-media. Computers, a printer, video and sound equipment, monitors, cameras, pre-recorded music and supplies, and other necessary equipment are available to create original DVDs and CD recordings, and are stored in a lockable cabinet. A "stage" where performances can be filmed is designated by a change in flooring and special lighting fixtures overhead. The wall behind the "stage" supports Chromakey technology. A large corkboard on one wall can be used for pinning up storyboards to plan scenes for filming. Supplies for drawing and writing are available as are plasticine and other pliable materials for creating figures to produce stop-action animation and 'claymation'. Bilingual signage provides information about the steps involved in

producing video projects. A supply of clothing and props such as newscaster's blazers with the station's logo, super hero costumes, fancy gowns, wireless microphones and other dramatic outfits and props add to the television fun.

Artburst is the program room devoted to arts programming. *ArtBurst* provides an environment that welcomes visitors of all ages to stretch their imaginations and participate in the creative, hands-on, open-ended, exploration of and experimentation with creative expression. This versatile, easy to maintain space is designed to be easily adapted to accommodate a wide variety of art experiences. This would include independent projects as well as those that that are more complex and require instruction and supervision. Table and chairs are easy to clean and may be moved to suit any activity. Protective aprons and smocks of all sizes hang from hooks near the entry door. Child-height and adult-height sinks offer a place for easy clean up for hands and art equipment. Lockable storage units provide safekeeping for some art materials, art projects in-progress, and cleaning supplies. A convenient drain in the floor, water source, and hose make washing the floor (and perhaps even the walls!) a snap.

The *Idea Place* program room will be equipped to provide science programming. What might you do if you found a place with a host of interesting materials, a variety of ways to fasten them together, make them move or do something, and some interesting challenges to try? The *Idea Place* will do just that. Materials will be kept in lockable cabinetry, making setup easy. Here, in a science laboratory atmosphere, visitors can experiment, try, explore, plan, hypothesize, and test ideas using a myriad of interesting materials. A laboratory like this provides an optimal setting for inviting visitors to truly *experience* science. Electrical hookups, sinks for easy cleanup and storage cabinets that hold supplies such as lab coats and goggles, clipboards, and a wide range of equipment such as magnifiers, pan balances, thermometers, dry cell batteries, pulleys, prisms, tubing of all kinds, magnets, compasses etc. will enable the museum to offer exciting science programming.

Appendices

Appendix A: Accessibility in Exhibits

The *Nevada Discovery Museum* includes differently-abled people in the life of the museum in natural, genuine ways. Exhibits have been carefully thought through, employing principles of universal design (also called inclusive design) so that they are *as usable as possible by as many people as possible regardless of age, ability or situation*. This means, for instance, that physical modifications will be made to every exhibit environment so that there are few barriers to full participation (even the climber will have ways for people confined to a chair to participate in the fun). It also means that, where natural and contextual, assistive technologies and equipment will be part of the museum's life.

Each exhibit area has been considered for its accessibility:

Exhibit Area	Individuals with Developmental Challenges	Individuals with Hearing Challenges	Individuals with Physical Challenges	Individuals with Social/Emotional Challenges	Individuals with Visual Challenges
Archeological Dig	Х	Х	Х	Х	X – may need assistance
Native Paiute: Then and Now	Х	Х	X	Х	Х
Westward Expansion	Х	Х	Х	Х	Х
Geology and Comstock Lode Mining	X	Х	X	x	X – feel rocks and increase in temperature
Pony Express	X	Х	X	X	X – may need assistance; feel horse, mustang, mail sack
Transcontinental Railway	Х	Х	Х	Х	X – may need assistance
Old World Cafe	Х	Х	Х	Х	Х

Accessibility in the Nevada Stories Exhibit

Accessibility in the *My Town* Exhibit

Exhibit Area	Individuals with Developmental Challenges	Individuals with Hearing Challenges	Individuals with Physical Challenges	Individuals with Social/Emotional Challenges	Individuals with Visual Challenges
Health Care	Х	Х	Х	Х	Х
Baby Doll Day Care	Х	Х	Х	Х	X – listen to lullabies
Kid's Car Care	Х	Х	Х	Х	X – may need assistance

Accessibility in the Build It Exhibit

Exhibit Area	Individuals	Individuals	Individuals	Individuals with	Individuals
	with	with Hearing	with Physical	Social/Emotional	with Visual
	Developmental	Challenges	Challenges	Challenges	Challenges
	Challenges				
Building the House	Х	Х	Х	Х	Х
Decorating the House	X	Х	X	X	X – may need assistance
Conservation	Х	Х	X – may need assistance	Х	X – may need assistance
Blocks	Х	Х	Х	Х	Х
CAD	X	Х	X – may need assistance	Х	X – may need assistance
Mini-Builders	Х	Х	Х	Х	Х
Renewable Resources and Energies	Х	Х	X – may need assistance	X	X – feel the wind
Real Tools	X	Х	X – may need assistance	Х	X – may need assistance
World Homes	X	X	X	X	X – may not be able to see photographs but may be able to see slide projections due to brightness of light
Book Nook	X	Х	X – may need assistance	X	X – will be able to utilize talking books

Accessibility in the Da Vinci's Corner Exhibit

Exhibit Area	Individuals with	Individuals with Hearing	Individuals with Physical	Individuals with Social/Emotional	Individuals with Visual
	Developmental	Challenges	Challenges	Challenges	Challenges
	Challenges				
Helicopter Testing	Х	Х	Х	Х	Х
Station					
Connections	Х	Х	Х	Х	Х
Art Fusion: Mine	Х	Х	Х	Х	Х
Control					
Art Alcove	Х	Х	Х	Х	Х
Science Center	Х	Х	Х	Х	Х

Accessibility in the Little Discoveries Exhibit

Exhibit Area	Individuals with Developmental Challenges	Individuals with Hearing Challenges	Individuals with Physical Challenges	Individuals with Social/Emotional Challenges	Individuals with Visual Challenges
Infant/Toddler Area	Х	Х	Х	X	Х

Accessibility in the *Space Odyssey* Exhibit

Exhibit Area	Individuals with Developmental Challenges	Individuals with Hearing Challenges	Individuals with Physical Challenges	Individuals with Social/Emotional Challenges	Individuals with Visual Challenges
Sensory Maze	Х	Х	X – may need assistance	X	Х
Space Ship	Х	Х	Х	Х	Х
Mission Control	Х	Х	Х	Х	Х
Space Bubbles	Х	Х	Х	Х	Х
Space Walk	Х	Х	X – may need assistance	X	X – may need assistance
Space Experiments	Х	Х	X	X	X – may need assistance
Constellations	X	X	X	X	X – may be able to see with bright light source
Space Sculpture	X	Х	Х	Х	X

Accessibility in the Cloud Climber Exhibit

Exhibit Area	Individuals with Developmental Challenges	Individuals with Hearing Challenges	Individuals with Physical Challenges	Individuals with Social/Emotional Challenges	Individuals with Visual Challenges
Climber	Х	X	X – may need assistance; most areas can be accessed if person can crawl	X	X – may need assistance

Accessibility in the Comstock Lode Mining Exhibit

Exhibit Area	Individuals with Developmental Challenges	Individuals with Hearing Challenges	Individuals with Physical Challenges	Individuals with Social/Emotional Challenges	Individuals with Visual Challenges
Mining Activities	Х	Х	Х	Х	X – may need assistance
Rock Identification	Х	Х	Х	Х	X –may need assistance
Building	Х	Х	Х	Х	Х

Accessibility in the Under the Stars Exhibit

Exhibit Area	Individuals with Developmental Challenges	Individuals with Hearing Challenges	Individuals with Physical Challenges	Individuals with Social/Emotional Challenges	Individuals with Visual Challenges
Campsite	Х	Х	Х	Х	Х
Build a shelter	Х	Х	X – may need assistance	Х	X – may need assistance
Kayaking	Х	Х	X – may need assistance	Х	Х
Fishing	Х	Х	Х	Х	X with assistance
Book Nook	Х	Х	Х	Х	X – will be able to

		76
		use talking books

Accessibility in the WaterWorks Exhibit

Exhibit Area	Individuals with Developmental Challenges	Individuals with Hearing Challenges	Individuals with Physical Challenges	Individuals with Social/Emotional Challenges	Individuals with Visual Challenges
Water Table	Х	Х	Х	Х	Х
Water Stewardship	Х	Х	Х	Х	X – listen to video
Hydroelectric Power	X	Х	X	X	X
Water Cycle	X	Х	X – may need assistance	X	X – may need assistance
Irrigation	Х	Х	Х	X	X – may need assistance
Cui-ui Fish	Х	Х	Х	Х	X – feel model
Tufa	X	Х	Х	X	X – may need assistance

Appendix B: Literacy at the Nevada Discovery Museum

No person should be deprived of one of life's real pleasures, the joy of reading. Bruce Alberts

We know that the ability to read is essential to success in our society and that early literacy is our nation's most pressing educational issue. The learning experiences in the museum underscore the understanding that reading is much more than scanning print. Rather, to really read, "we must move inside of the text, pulling our lives along with us and incorporating the text and our lives into a new understanding of the world." (Gallas, K., 1997). Thus, to step into the new Nevada Discovery Museum is to step into the world of story.

During the earliest months and years of life, the foundations for reading are laid. Being able to recite the ABC's is only a tiny element of learning to read. More important is learning to talk; to speak and be spoken to; to listen and understand; to imagine, play and dream and to be encouraged to talk about one's imaginings. Children benefit from regular interactions with print. Adults are key to children's reading, offering guidance, encouragement and informal conversation and questioning, which increases story comprehension and enjoyment.

The museum supports adults in their crucial role of facilitating children's learning. We understand that creative, interactive play shared by children and caring adults fosters learning and develops relationships. Literature and literacy experiences abound in every nook and cranny of the museum. Here a book, there a word, over there a letter. Gathered in a circle is a group listening to a story; over there someone is writing on a blackboard; two people play with rhyming; a parent and child snuggle into a reading nook and quietly read together. Everywhere, there is a buzz of people reading words, telling tales, playing out imaginings and creating new worlds and words. This is a museum that inspires people to see, think and do literacy activities....in the most natural, contextual, happy way possible.

Ways that literacy will be present at the new Nevada Discovery Museum:
•reading nooks in every exhibit, with books in both English and Spanish, and, where possible, books that are in BOTH English and Spanish within the same book
•environmental print: in the context of exhibits, as appropriate, you'll find billboards, calendars, catalogs, comics, containers, coupons, flyers, boxes, cans, containers, jars, labels, magazines, menus, newspapers, posters, recipes, road signs, telephone books
•word bank: like an ATM, but what is dispensed are words. Words to play with arrange, rearrange, read....and move on
•magnetic poetry wall; rhyming words wall
•blackboards, greenboards, whiteboards for writing, writing, writing
•regular story-reading and story telling by local celebrities ranging from a mayor to a policeman, from the head of the library to a successful entrepreneur.
•book-trading center: bring a book, take a book
•exhibit labels: essential information, if you take the time to read it!

Appendix C: Musical Experiences

Music is familiar to everyone and it is common to every culture. We hear music nearly everywhere: at home, in school, in the car, in stores, in places of work. Music energizes us, comforts us, and often bridges the gap between us. Music offers rich learning experiences and is an important teaching tool; it organizes the mind and body to work together in a coordinated manner.

Young children are intuitively attracted to musical patterns and structure. Experts agree that music can strengthen children's minds and be the catalyst that sparks all areas of development: intellectual, motor, language, overall literacy, and social-emotional.

Music and song are integrated into every gallery throughout the *Nevada Discovery Museum*. These musical experiences will encourage listening, learning, creativity, experimentation, and positive interactions with other museum visitors in joyous, wondrous ways.

Gallery	Sample Musical Experience(s)
Nevada Stories	Traditional Paiute drums; traditional Pauite
	rawhide rattles; ballad songs of Westward
	Expansion
My Town	Lullabies and folk songs from different
	cultures; car radio playing regional, classical,
	folk music; wrench-o-pipe xylophone
Build It!	Xylopipes; PVC pipes with flip flop beater.
	These are a little different from the standard,
	because visitors can adjust the length of the
	pipes
Da Vinci's Corner	Vibrations of music sound table; Aeolian harp
Little Discoveries	Ball drop xylophone; traditional xylophone
Space Odyssey	Space Oddity song; Boom Whackers; theramin
Cloud Climber: Exploration and Trailblazing	Kalimba; tongue drums
Comstock Lode Mining	Rock music; mining songs
Under the Stars	Camp songs sung during sing-alongs
WaterWorks	Water pipes

Appendix D: Gender Study of Exhibits

The exhibits in a well-designed children's museum serve the needs of both boys and girls, equally. The *Nevada Discovery Museum* aims to educate, involve and inspire boys and girls from infancy through the elementary school years. This is a vast age range developmentally. Not only do children's learning modes and methods change greatly during that age span, but also gender issues come into play after age 5.

As enlightened as we are as parents, educators and as a society, there are incontrovertible differences between boys and girls in the way they develop and learn socially, cognitively and physically. These differences are present almost from conception, but begin to really make themselves felt around age 5. For some children, of course, it is earlier; for others it is later. But generally speaking, one can be quite sure that six month old girls will thrive in an environment similar to that enjoyed by six month old boys; three year old boys will enjoy much the same things as three year old girls.

After age five, however, boys and girls begin to separate in their interests, actions and alliances. A boy's developmental imperative becomes learning to be a boy; a girl is learning to be a girl. Boys learn how to be boys from boys and men, and girls learn how to be girls from other girls and women. It is (almost) as simple as that.

Societal pressures for gender differences also increase around the same time. Boys who played quite happily with their sister's kitchen set at age 3 or 4 can be made to feel a little foolish doing so when they're six; girls who were quite engrossed with building blocks at age 4 are unlikely to continue to be offered building materials when they are 6 or 8... even though their male counterparts are becoming more and more interested in such play.

Gender issues within a children's museum environment are interesting. They both confirm and digress from the norm outside the museum setting. In many ways, the children's museum is a *freeing* experience. Boys allow themselves to play in ways that might embarrass them were they to play this way at home or on the playground; girls take risks that might not be afforded to them in the more ordinary course of their lives.

In other ways, though, traditional gender patterns are played out within the carefully prepared museum environment. Boys will be found at the helm of the ship while the girls cower in a pretend gale; girls will prepare the food in the play kitchen while boys are out building the house.

Sometimes, there are easy solutions to gender divisions. Sometimes, attracting both genders can be a simple matter of color choices. Girls will readily shingle a roof that is purple and blue; they are less likely to join in if more traditional colors are used.

Sometimes it is necessary to plan separate but parallel activities into the environment in order to engage both boys and girls within the same exhibit area. A methodical analysis of exhibit activities can go a long way towards creating a museum without gender bias. It is such a study that has been conducted on the exhibits planned for *Nevada Discovery Museum*.

Method

Two child development specialists evaluated all the activities outlined in planning the exhibits. Separately and together they looked at each activity to estimate what percentage of play would be boy play and what percentage would be girl play. The total score any component could receive was 100. Thus, a component that was judged to be equally appealing to boys and girls would be ranked 50/50. An area that skewed to boys would perhaps be rated 65/35; an area that might be used slightly more by girls might show a 45/55 rating. Each exhibit area was then tallied, and a gross total was achieved.

Some areas, for example, *Da Vinci's Corner*, were found to be of equal appeal to both boys and girls of all ages. Other areas needed a little work to make them approach balance. These areas were studied and additional activities were added to better equalize the numbers. The results of the gender study and recommendations are shown below:

Nevada Stories: Learning about local history offers girls and	Boys	Girls
boys the opportunity to develop their own sense of identity.		
Archeological Dig	50	50
Native Paiute: Then and Now	50	50
Westward Expansion	45	55
Geology and Comstock Lode Mining	50	50
Pony Express	55	45
Transcontinental Railway	50	50
Old World Cafe	50	50
Gallery Total	350	350

My Town: Girls and hoys alike benefit from learning about	Boys	Girls
institutions in their community that are malified on her all. While	DOys	UIIIS
institutions in their community that are relied on by all. While		
girls and boys alike will participate in learning about what		
happens in a health care setting, more girls will engage in doll		
play and boys will be more attracted to cars.		
Health Care	50	50
Baby Doll Day Care	30	70
Kid's Car Care	65	35
Gallery Total	145	155

Build It: While building with blocks and other materials is	Boys	Girls
typically thought of as an activity more appealing to boys,		
activities such as conservation, using the computer to design		
buildings, and renewable resources are interesting to everyone.		
Building the House	60	40
Decorating the House	40	60
Conservation	50	50
Blocks	60	40
CAD	50	50
Mini-Builders	50	50

		81
Renewable Resources and Energies	50	50
Real Tools	55	45
World Homes	50	50
Book Nook	50	50
Gallery Total	515	485
Da Vinci's Corner : Both girls and boys enjoy activities that	Boys	Girls
inspire exploration, creativity, imagination, and		
experimentation.		
Helicopter Testing Station	50	50
Connections	50	50
Art Fusion: Mine Control	50	50
Art Alcove	50	50
Science Center	50	50
Gallery Total	250	250
	D	O: 1
Little Discoveries: Infant and toddler girls and boys enjoy all	Boys	Girls
activities equally.	50	50
Infant/Ioddler Area	50	50
Space Odyssey : Girls and boys alike have a natural curiosity	Boys	Girls
about outer space, space ships, and being an astronaut.		
Sensory Maze	50	50
Space Ship	55	45
Mission Control	45	55
Space Bubbles	50	50
Space Walk	50	50
Space Experiments	50	50
Constellations	50	50
Space Sculpture	50	50
Gallery Total	400	400
Cloud Climber: Exploration and Trailblazing : Climbing is	Boys	Girls
an activity that sparks a sense of adventure and is equally		
appealing to girls and boys alike.		
Climber	50	50
Gallery Total	50	50
Comstack Lado Mining: Learning about mining and rocks	Boye	Girls
appeals equally to girls and hove	DOYS	UIIIS
Mining Activities	50	50
Rock Identification	50	50
Building with Rocks	50	50
Dunuing with NOCKS	50	50

Building with Rocks Gallery Total

		82
Under the Stars: Girls and boys will enjoy activities relating	Boys	Girls
to camping and being outdoors.		
Campsite	50	50
Build a shelter	50	50
Kayaking	50	50
Fishing	50	50
Book Nook	50	50
Gallery Total	250	250

WaterWorks: Water is appealing to all children.	Boys	Girls
Water Table	50	50
Water Stewardship	50	50
Hydroelectric Power	50	50
Water Cycle	50	50
Irrigation	50	50
Cui-ui Fish	50	50
Tufa	50	50
Gallery Total	350	350

Museum Totals				
Gallery	Boys	Girls		
Nevada Stories	350	350		
My Town	145	155		
Build It	515	485		
DaVinci's Corner	250	250		
Little Discoveries	50	50		
Space Odyssey	400	400		
Cloud Climber	50	50		
Comstock Lode Mining	150	150		
Under the Stars	250	250		
WaterWorks	350	350		
Totals 2510 or 50% 2490 or 50%				

The museum is equally able to meet the needs and interests of both boys and girls.

Appendix E: Age Study of Exhibits

Children's interests and the ways they learn change dramatically during the years of childhood. Not only are their physical sizes vastly different, so are their intellectual interests and abilities. Accommodating these shifting needs and understandings is part of the challenge of developing exhibit content in a children's museum.

In some instances, a two year old and a 10 year old can be engrossed in the same activity at the same time, with equal purpose; an example of this would be painting, an activity that is compelling for both young and old. Other activities don't have this overlap: for example, a 10 year old would have little or no interest in putting pegs into a pegboard, while for a 2 year old this is stimulating both cognitively and physically.

The challenge, then, is to create environments and exhibit activities within these environments that will prove interesting to children of all ages. In some cases-such as art- this will happen quite naturally. In others, it is necessary to look at the content carefully and see how it can be upaged or down-aged so that there are interesting things to do all over the museum, no matter your age.

It is just such analysis that has been performed on the planned exhibits for the *Nevada Discovery Museum*.

Method

Two child development specialists evaluated all the activities outlined in the preliminary exhibit plan. Separately and together they looked at each exhibit area to estimate what percentage of play would be school-age play (children 6 and over) and what percentage would be pre-school play (children 5 and under). The total score any exhibit area could receive was 100. Thus, a component that was judged to be equally appealing to school- age children and pre-school children would be ranked 50/50. An area that skewed to school-age children would perhaps be rated 60/40; an area that might be used slightly more by pre-school children might show a 45/55 rating. Each exhibit area was then tallied, and a gross total was achieved.

When results were skewed towards one age group or the other, additional activities were added to make it more equal. The results of the age study and recommendations are shown below:

Nevada Stories : Although learning about the historical past offers older children the opportunity to develop their own sense of self, younger children are interested in trains and restaurant play.	5 and under	6+
Archeological Dig	40	60
Native Paiute: Then and Now	50	50
Westward Expansion	40	60
Geology and Comstock Lode Mining	40	60
Pony Express	45	55
Transcontinental Railway	55	45
Old World Cafe	50	50
	220	200

My Town: While younger children are	5 and under	6+
most fascinated by caring for babies and		
playing with cars, activities such as looking		
at x-rays, lullabies in many languages, and		
information about hybrid car technology		
will be of interest to older children.		
Health Care	55	45
Baby Doll Day Care	60	40
Kid's Car Care	55	45
Gallery Total	170	130

Build It: Many of the components that	5 and under	6+
address conservation, energy, interior		
decorating, homes around the world, and		
building with real tools are for older		
children. But, building the house, using the		
computer, and block play are enjoyed by the		
younger children,		
Building the House	50	50
Decorating the House	45	55
Conservation	40	60
Blocks	50	50
CAD	50	50
Mini-Builders	50	0
Renewable Resources and Energies	35	65
Real Tools	30	70
World Homes	30	70
Book Nook	50	50
Gallery Total	430	520

Da Vinci's Corner: Activities that	5 and under	6+
encourage experimentation and creativity		
are appealing to children of all ages.		
Helicopter Testing Station	50	50
Connections	50	50
Art Fusion: Mine Control	50	50
Art Alcove	50	50
Science Center	50	50
Gallery Total	250	250

Little Discoveries: This area is for infants	2 and under	6+
and toddlers only.		
Infant/Toddler Area	100	0

Space Odyssey : Children of all ages have a	5 and under	6+
natural curiosity about space.		
Sensory Maze	50	50
Space Ship	50	50
Mission Control	45	55
Space Bubbles	50	50
Space Walk	50	50
Space Experiments	45	55
Constellations	50	50
Space Sculpture	50	50
Gallery Total	390	410

Cloud Climber: Climbing, which provides the thrill of adventure, is appealing to girls and boys of all ages. Only one part of the climber will be accessible by very little children.	5 and under	6+
Climber	50	50
Gallery Total	50	50

Comstock Lode Mining : Although rock identification and information about mining is appealing to older children, building activities are enjoyed by all ages	5 and under	6+
Mining Activities	35	65
Rock Identification	35	65
Building with Rocks	50	50
Gallery Total	120	180

Under the Stars : Girls and boys of all ages will be drawn to the sense of freedom and adventure fostered by camping and the	5 and under	6+
outdoors.		
Campsite	60	40
Build a shelter	50	50
Kayaking	50	50
Fishing	60	40
Book Nook	50	50
Gallery Total	270	230

WaterWorks: Water play and exploration	5 and under	6+
is enjoyed by children of all ages.		
Water Table	50	50
Water Stewardship	40	60
Hydroelectric Power	40	60
Water Cycle	50	50
Irrigation	50	50
Cui-ui Fish	50	50
Gallery Total	280	320

Age Balance Museum Totals		
Gallery	5 and under	Over 6
Nevada Stories	320	380
My Town	170	130
Build It	430	520
DaVinci's Corner	250	250
Little Discoveries	100	0
Space Odyssey	390	410
Cloud Climber	50	50
Comstock Lode Mining	120	180
Under the Stars	270	230
WaterWorks	280	320
Museum Totals	2380 or 49%	2470 or 51%

Thus, with the museum activities looked at as a whole, the museum is almost perfectly balanced between activities for younger children and activities for older children.

Appendix F: Nevada Discovery Museum Exhibits and Their Correlation to the Nevada Department of Education Academic Standards

Every exhibit throughout the Nevada Discovery Museum was thoughtfully developed and carefully examined to ensure that components correlate with the standards in all academic disciplines as delineated in the Nevada Department of Education Academic Standards. Those standards for each academic area are listed as written by the Nevada Department of Education, followed by a statement that describes how these standards are met in the museum exhibits.

For the Pre-Kindergarten Standards, the Performance Standards are given in addition to the Content Standards since these statements are more descriptive of children's behaviors and clearly relate to how the museum exhibits meet the Content Standards.

Pre-Kindergarten

LANGUAGE AND EARLY LITERACY

Reading

Content Standard 1.0: Students know and use word analysis skills and strategies to comprehend new words encountered in context.

- •1.PK.1 Recognize environmental print and symbols.
- •1.PK.7 Demonstrate an awareness that print carries a message.

•1.K.1 Use high-frequency words and environmental print to read simple texts.

Content Standard 2.0: Students use reading process skills and strategies to build comprehension.

•2.PK.1 Use pictures to aid comprehension.

•2.PK.2 Ask questions or make comments pertinent to the story being read.

•2.PK.6 Identify the front of the book and know how to turn the pages when reading.

•2.K.1 Use prior knowledge and picture clues as pre-reading strategies to aid comprehension. Content Standard 3.0: Students read to comprehend, interpret, and evaluate literature from a variety of authors, cultures, and times.

•3.PK.1 Retell a story with the aid of pictures, props, or a book.

•3.PK.2 Predict what will happen next in a story and respond.

•3.PK.3 Listen and respond to stories from different cultures and eras.

•3.PK.5 Listen and respond to rhythm or rhyme.

•3.PK.6 Listen and respond to age-appropriate material for a variety of purposes.

•3.PK.7 Listen and respond to poetry and prose.

•3.K.3 Listen to stories from different cultures and eras.

•3.K.7 Listen and respond to poetry and prose.

Content Standard 4.0: Students read to comprehend, interpret, and evaluate informational texts for specific purposes.

•4.PK.1 Demonstrate an understanding that printed material provides information.

•4.PK.2 Recall information from an event, text, or picture.

•4.PK.3 Respond to or ask a question about an event, text, or picture.

•4.PK.6 Follow, with teacher assistance, a simple pictorial direction.

•4.K.1 Demonstrate an understanding that texts, pictures, and graphs provide information.

•4.K.2 Recall information from texts, pictures, and graphs.

•4.K.3 Distinguish between statements and questions.

•4.K.6 Follow, with teacher assistance, a simple pictorial/written direction.

The museum is an environment rich in print that invites pre-readers and early readers to use their emerging reading skills as they interact with a variety of literacy opportunities throughout the entire museum.

Writing

Content Standard 5.0: Students write a variety of texts that inform, persuade, describe, evaluate, or tell a story and are appropriate to purpose and audience.

•5.PK.1 Experiment with writing tools and materials in response to information.

•5.PK.2 Experiment with writing tools and materials to communicate.

•5.PK.3 Experiment with writing tools and materials in response to a familiar experience.

•5.PK.4 Experiment with writing tools and materials in response to literature.

•5.K.1 Respond to information by drawing or writing with teacher assistance.

•5.K.2 Draw or write, with teacher assistance, to communicate.

•5.K.3 Draw or write, with teacher assistance, stories about familiar experiences and events.

•5.K.4 Draw or write, with teacher assistance, responses to literature.

Content Standard 7.0: Students write using standard English grammar, usage, punctuation, capitalization, and spelling.

•7.PK.6 Use letter-like approximation to write name and/or other words or ideas.

•7.PK.7a Demonstrate beginning techniques for using various writing materials.

•7.K.6 Form letters correctly.

Visitors have opportunities to use different writing (or drawing) implements in DaVinci's Corner and Under the Stars.

Listening and Speaking

Content Standard 8.0: Students listen to and evaluate oral communications for content, style, speaker's purpose, and audience appropriateness.

- •8.PK.1 Listen for a variety of purposes.
- •8.PK.2 Listen and respond appropriately to stories and group discussions.
- •8.PK.4 Listen to and follow a two-step oral direction.

•8.PK.5 Listen with increasing attention span.

•8.K.1 Listen for a variety of purposes such as to obtain information, to solve problems, or enjoyment.

•8.K.2 Attend to and respond to stories and group discussions.

•8.K.4 Listen to and follow an oral direction.

Content Standard 9.0: Students speak using organization, style, tone, voice, and media aids appropriate to audience and purpose.

•9.PK.1 Use and expand vocabulary.

•9.PK.2 Speak with increasing clarity, ease, and accuracy.

•9.PK.3 Initiate conversation and respond to others.

•9.PK.4 Use language to repeat simple stories, songs or rhymes, or to relate experiences.

•9.PK.5 Give a clear direction.

•9.PK.6 Speak in complete sentences, using at least three words.

•9.K.1 Use and expand vocabulary to communicate ideas.

•9.K.2 Speak clearly at an understandable pace.

•9.K.3 Share and respond to ideas.

•9.K.4 Relate experiences and retell stories.

•9.K.5 Give clear directions to complete a simple task.

Content Standard 10.0: Students participate in discussions to offer information, clarify ideas, and support a position.

- •10.PK.1 Engage in conversation and sometimes follow conversational rules.
- •10.PK.2 Ask and answer simple questions.
- •10.PK.3 Share ideas and information from personal and shared-group experiences.
- •10.PK.5 Engage in dramatic play to convey experiences, feelings, ideas, or stories.
- •10.K.1 Demonstrate turn-taking in conversations and group discussions.
- •10.K.2 Ask and answer questions.
- •10.K.3 Share ideas and information.

There are many elements to listen to in every gallery, including special environmental sounds, audio signage, and new words in various language. These features require listening and encourage speaking.

MATH

Numbers, Number Sense, and Computation

Content Standard 1.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions.

- •1.PK.1 Use concrete objects to combine and separate groups up to 5.
- •1.PK.5 Count to 10.
- •1.PK.6 Recognize and read numerals 0-5.
- •1.K.5 Count to 20.
- •1.K.6 Recognize, read, and write numbers from 0-10.

•1.K.7 Estimate the number of objects in a set to 10 and verify by counting; use ordinal positions first to third.

Opportunities to count and see numbers throughout the museum including the Entryway, Nevada Stories, My Town, Build It, Da Vinci's Corner, Little Discoveries, Space Odyssey, Comstock Lode Mining, Under the Stars, *and* Water Works.

Patterns, Function, and Algebra

Content Standard 2.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations of patterns, functions, and algebraic relations as modeled in practical situations.

•2.PK.1a Sort objects by similar attributes.

•2.PK.1b Recognize and replicate simple patterns.

•2.PK.4 Compare sets of objects. Determine which set has more or less.

•2.K.1 Sort and describe objects by similar attributes; recognize and replicate a pattern.

Opportunities to sort, make connections, and find patterns are a part of many gallery experiences including those in My Town, Build It, Da Vinci's Corner, Little Discoveries, Space Odyssey, Comstock Lode Mining, Under the Stars, and WaterWorks.

89

Measurement

Content Standard 3.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements.

•3.PK.1 Compare objects by size to determine smaller and larger.

•3.PK.6 Identify day and night.

•3.K.1 Compare and order objects by size communicating their similarities and differences.

Visitors have opportunities to make comparisons throughout the museum. A variety of measurement opportunities are also available.

Spatial Relationships and Geometry

Content Standard 4.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will identify, represent, verify, and apply spatial relationships and geometric properties.

•4.PK.1 Identify circles, triangles, and squares.

•4.PK.2 Identify positions (e.g., in front, behind, next to, up, down, inside, outside, on top).

•4.K.1 Identify two-dimensional shapes (circles, triangles, rectangles including squares) regardless of position.

•4.K.2 Use position words (e.g., middle, before, down) to place objects.

•4.K.3 Identify two-dimensional figures (e.g., windows are shaped like rectangles) as they appear in the environment.

Exploration of shapes and spatial relationships occurs in Build It, Da Vinci's Corner, *and* Little Discoveries.

SOCIAL STUDIES

Social-Emotional Development

Content Standard 1.0: Students will participate in activities that foster independence, self-expression, and persistence.

•1.PK.1a Make independent choices from diverse interest centers or activities.

•1.PK.1b Select materials to use in order to express individuality.

•1.PK.2a Express ideas for activities, initiate and participate in discussions with teachers or peers.

•1.PK.2b Acknowledge actions and accomplishments verbally and nonverbally.

•1.PK.3 Re-engage in a task or activity after experiencing disappointment, frustration, or failure.

Content Standard 2.0: Students will demonstrate self-direction by attaining skills in self-management, self-help, and routines.

•2.PK.1a Separate easily from parent(s)/ caregiver(s)/ significant adult(s).

•2.PK.1b Move through routines and activities with minimal adult/ teacher direction.

•2.PK.2 Demonstrate self-help skills.

•2.PK.3a Use toys and materials with care.

•2.PK.3b Clean up or put away toys and materials when finished.

Content Standard 3.0: Students will identify and express feelings.

•3.PK.2a Express feelings, needs, or wants in appropriate ways.

•3.PK.2b Demonstrate awareness of feelings of others

Content Standard 4.0: Students will develop interaction skills with other children and adults.

•4.PK.1a Demonstrate appropriate affection for teachers and friends.

- •4.PK.1b Express common courtesy to others.
- •4.PK.1c Respect rights and belongings of others.
- •4.PK.1d Demonstrate problem-solving skills.

Content Standard 5.0: Students will demonstrate positive social behaviors in play and group settings.

- •5.PK.1a Play independently.
- •5.PK.1b Play in pairs and small groups.
- •5.PK.1c Engage in dramatic play.
- •5.PK.1d Initiate play, or enter into play with a group of children already playing.

•5.PK.2a Participate in cooperative groups to complete a task.

- •5.PK.2b Take turns with teacher support.
- •5.PK.2c Share some of the time.

Content Standard 6.0: Students will demonstrate attending and focusing skills.

•6.PK.1a Attend to a task for at least 10 minutes.

•6.PK.1b Move on to next activity without exhibiting signs of stress.

•6.PK.1c Use verbal and non-verbal conversation skills.

•6.PK.1d Demonstrate ability to delay gratification to complete a larger task.

The entire museum experience provides opportunities for visitors to make choices, express feelings, show respect for others, engage in independent play as well as play with others, cooperate, and attend to tasks.

Economics

Content Standard 1.0: Students will use fundamental economic concepts, including scarcity, choice, cost, incentives, and costs versus benefits to describe and analyze problems and opportunities, both individual and social.

•1.PK.3 Decide between two choices.

Particularly in Nevada Stories, visitors will make choices based on fundamental economic concepts.

Geography

Content Standard 1.0: Students use maps, globes, and other geographic tools and technologies to locate and derive information about people, places, and environments.

•1.K.2 Recognize a map and a globe.

Content Standard 2.0: Students understand the physical and human features and cultural characteristics of places and use this information to define and study regions and their patterns of change.

•2.PK.3 Be exposed to diverse family practices, customs and culture.

Content Standard 3.0: Students understand how physical processes shape Earth's surface and ecosystems.

•3.PK.1 Identify familiar weather conditions.

•3.K.1 Discuss daily weather conditions

Maps and other dimensional models that assist visitors in identifying and locating places are seen in Nevada Stories, My Town, Build It, Cloud Climber, Under the Stars, and Water Works.

SCIENCE

Physical Science

Content Standard 1.0: Students understand that forces such as gravitational, electrical, and magnetic influence the motion of objects.

•1.PK.1 Explore and demonstrate how objects move.

•1.PK.4 Investigate how objects react when placed in water.

•1.K.1 Investigate and describe how objects move.

•1.K.4 Observe and describe how objects behave when placed in water.

Content Standard 2.0: Students understand that materials have distinct properties which depend on the amount of matter present, its chemical composition, and structure.

•2.PK.2 Sort objects according to observable properties

Content Standard 3.0: Students understand that changes in temperature and pressure can alter states of matter. Energy exists in many forms, and one form can change into another.

•3.PK.1 Identify hot and cold.

Visitors may explore elements of physical science – gravity, electricity, magnetism, the movement of objects, energy forms – throughout the museum.

Life Sciences

Content Standard 6.0: Students understand that all life forms, at all levels of organization, use specialized structures and similar processes to meet life's needs.

•6.PK.1 Identify humans, animals, and plants.

•6.PK.2 Use the five senses to explore and investigate the natural world.

•6.K.1 Observe and describe animal attributes.

Content Standard 13.0: Students understand that Earth systems have a variety of cycles through which energy and matter continually flow.

•13.PK.2 Observe and identify weather from day to day.

•13.K.2 Observe and record weather from day to day.

Content Standard 15.0: Students will demonstrate an understanding that ecosystems display patterns of organization, change, and stability as a result of the interactions and interdependence among the life forms and the physical components of the Earth.

•15.PK.1 Identify animals and their homes.

•15.K.1 Recognize that animals live in different places.

Content Standard 21.0: Students understand that science is an active process of systematically examining the natural world.

•21.PK.1a Observe their world.

•21.PK.1b Ask questions about their world.

•21.K.1 Ask questions about the world.

Content Standard 22.0: Students understand that a variety of communication methods can be used to share scientific information.

•22.PK.3 Share ideas with others.

•2.K.3 Share information and ideas with others.

The museum provides activities that invite visitors to use all senses to explore, observe, and ask questions throughout the entire museum.

CREATIVE ARTS

Creative Thinking

Content Standard 1.0: Children approach problems in a creative manner.

•1.PK.1 Use a variety of approaches to solving problems in math, science and other cognitive areas.

•1.PK.2 Use a variety of approaches to solving interpersonal problems in the classroom.

•1.PK.3 Adapt environment or abilities to reach a motor challenge such as climbing or reaching an object.

Content Standard 2.0: Children demonstrate motivation to learn and persistence in approaching tasks.

•2.PK.1 Select progressively more challenging tasks.

•2.PK.2a Demonstrate ability to delay gratification to complete a larger task.

•2.PK.2b Express satisfaction when accomplishing a task and achieving a goal.

•2.PK.3 Demonstrate persistence by trying again when faced with challenges.

Content Standard 3.0: Children create a variety of connections between and among activities, domains, ideas, experiences, and/or people.

•3.PK.1 Combine objects in a variety of ways.

•3.PK.3 Create stories and scenarios by combining experiences and ideas.

Visitors have opportunities to think creatively, try challenging tasks, and solve problems and challenges in a variety of ways in every gallery in the museum.

Music and Movement

Content Standard 1.0: Students sing a varied repertoire of music alone and with others.

•1.PK.1 Make a variety of sounds with their voices.

•1.PK.2 Create and sing chants.

•1.PK.3 Approximate pitch and increase singing range.

•1.PK.4a Recognize and select a variety of simple songs, finger plays, musical games, and musical activities alone and with others.

•1.PK.4b Select and recognize a variety of songs from diverse cultures.

Content Standard 2.0: Students perform a varied repertoire of music on instruments alone and with others.

•2.PK.1 Play and identify a variety of musical instruments.

•2.PK.4 Accompany simple music with rhythm instruments or clapping.

Content Standard 3.0: Students improvise melodies, variations, and accompaniments.

•3.PK.1 Improvise simple songs and rhythmic patterns using voice, body or instrument.

Content Standard 6.0: Students listen to, analyze, and describe music.

•6.PK.1 Identify simple elements of music such as loud/soft and fast/slow.

•6.3.1 Identify simple elements of music.

Content Standard 7.0: Students evaluate music and music performances.

•7.PK.2 Demonstrate a preference in music.

Content Standard 10.0: Students demonstrate an understanding of movements through skills, techniques, choreography, and as a form of communication.

•10.PK.1a Move in a variety of ways to music.

•10.PK.1b Move with and without music using a variety of props such as scarves, balloons, hoops, etc.

•10.PK.1c Respond to changes in tempo.

Music opportunities are incorporated into every gallery experience and offer many ways for visitors to sing, use instruments, listen, and move to music.

Dramatic Play

Content Standard 1.0: Students recognize the components of theatrical production including script writing, directing, and production.

•1.PK.1 Act out a role observed in his/her life experiences, for instance, mother, baby, doctor.

•1.PK.2a Make up new roles, for instance, from experience and familiar stories.

•1.PK.2b Direct peers and/or follow directions from peers in creating dramatic play schemes.

•1.PK.3 Act out roles that involve another child(ren) in a related role, for instance, mother and baby, grocer and shopper.

•1.PK.6 Use available materials as either realistic or symbolic props as part of dramatic play.

•1.PK.7 Use dress-up clothes or costumes and other props in dramatic play.

Content Standard 2.0: Students understand and demonstrate the role of actor in the theater.

•2.PK.1 Discriminate among persons, animals, and objects by identifying characteristics.

•2.PK.2 Imitate roles observed in child's life experiences.

•2.PK.3 Assume the role of a familiar person or thing and talk in the language/tone appropriate for that person or thing.

Content Standard 3.0: Students apply and demonstrate critical and creative thinking skills in theater, film, television, or electronic media.

•3.PK.3 Differentiate between pretend and real.

Content Standard 5.0: Students make connections with theater, the other arts, and academic disciplines.

•5.PK.1 Use music, movement, and visual arts in dramatic play.

•5.PK.3 Use language arts, math, science, and other disciplines in dramatic play.

The museum provides situations that encourage visitors to assume new roles, enact familiar roles, invent characters, communicate with others, use props, interact with others, and use movement and music in play-acting.

Visual Arts

Content Standard 1.0: Students know and apply visual arts media, techniques, and processes.

•1.PK.3 Use a variety of media, techniques, and processes in art activities that are of the child's creation without a model.

Content Standard 2.0: Students use knowledge of visual characteristics, purposes, and functions. •2.PK.4 Identify color, shape, and texture through art experiences.

Content Standard 3.0: Students choose, apply, and evaluate a range of subject matter, symbols, and ideas.

•3.PK.1 Recognize various art forms.

•3.PK.2 Create works that express or represent experiences, ideas, feelings, and fantasy using various media.

Content Standard 4.0: Students understand the visual arts in relation to history and cultures.

•4.PK.3 Create a work of art that expands on an experience, such as after a field trip, or as part of a cultural event.

Content Standard 5.0: Students analyze and assess characteristics, merits, and meanings in their own artwork and the work of others.

•5.PK.1 Recognize their own and others' art work.

•5.PK.2 Demonstrate respect for the art work of others.

•5.PK.3 Describe or respond to their own creative work or the creative work of others

Content Standard 6.0: Students demonstrate relationships between visual arts, the other arts, and disciplines outside the arts.

•6.PK.2 Use visual arts in dramatic play, music, and movement activities.

DaVinci's corner will provide visitors with a rich opportunity for visual arts experiences of all kinds.

PHYSICAL DEVELOPMENT

Content Standard 1.0: Students understand and apply movement concepts and principles to the learning and development of motor skills.

•1.PK.1 Identify the basic vocabulary of simple movement patterns.

Content Standard 2.0: Students demonstrate competency in many movement forms and proficiency in a few movement forms.

•2.PK.1 Demonstrate a basic form in walking, running, climbing, jumping, hopping and walking up and down stairs.

•2.PK.2 Perform a variety of large motor skills.

Content Standard 3.0: Students demonstrate an understanding of dance through skills, techniques, choreography, and as a form of communication.

•3.PK.1 Demonstrate locomotor movements such as up, down, forward, and backward.

•3.PK.2 Demonstrate the ability to follow basic movements.

Content Standard 4.0: Students achieve and maintain a health-enhancing level of individual fitness for an active lifestyle.

•4.PK.2 Engage in daily moderate to vigorous physical activity.

•4.2.2 Engage in daily moderate to vigorous structured physical activity.

Content Standard 5.0: Students demonstrate personal responsibility, positive social interaction, and respect for diversity in physical activity settings.

•5.PK.1 Participate appropriately during physical activities.

•5.PK.2 Demonstrate turn taking and cooperation during physical activities.

•5.PK.3 Interact positively with others regardless of personal differences.

•5.PK.4 Participate in multi-cultural activities that enhance physical development.

Content Standard 6.0: Students demonstrate the ability to perform a variety of fine motor skills.

•6.PK.1 Demonstrate skills in eye-hand coordination.

•6.PK.2 Demonstrate the muscle strength, dexterity, and control needed to manipulate items.

•6.PK.3 Use fingered or tripod grasp with drawing, painting or writing instruments.

Activities that encourage visitors to be physically active are all over the museum. In particular, these opportunities occur in Build It, Cloud Climber, Comstock Lode Mining, and Under the Stars.

HEALTH

Content Standard 1.0: Students will comprehend concepts related to health promotion/disease prevention. •1.PK.1

Demonstrate personal hygiene skills.

•1.PK.3 Identify healthy foods.

•1.PK.5 Identify some safety rules.

•1.PK.6 Demonstrate basic disease prevention skills.

Content Standard 3.0: Students will demonstrate the ability to practice health-enhancing behaviors and reduce health risks.

•3.PK.1 Identify and express basic feelings.

•3.PK.3 Identify potential hazards at home, school, and community.

The museum promotes the health and safety of all visitors. Safety rules are posted throughout. My Town provides opportunities to learn about making healthy choices and disease prevention.
Education Standards through Grade 5

<u>ARTS</u>

Music

Content Standard 1.0: Singing - Students sing a varied repertoire of music alone and with others. Content Standard 2.0: Playing Instruments - Students perform a varied repertoire of music on instruments alone and with others.

Content Standard 3.0: Improvisation - Students improvise melodies, variations, and accompaniments.

Content Standard 6.0: Listening - Students listen to, analyze, and describe music.

Content Standard 7.0: Evaluation - Students evaluate music and music performances.

Content Standard 8.0: Application to Life - Students demonstrate relationships between music, the other arts, and disciplines outside the arts.

Content Standard 9.0: Cultural and Historical Connections - Students demonstrate knowledge of the historical periods and cultural diversity of music.

Content Standard 10.0: Cross-curricular - Students demonstrate an understanding of movement through skills, techniques, choreography, and as a form of communication.

Musical opportunities are integrated throughout the museum and can be found in every exhibit as individual experiences as well as grouped together for a larger music experience.

Theater

Content Standard 1.0: Students recognize the components of theatrical production including script writing, directing, and production.

Content Standard 2.0: Students understand and demonstrate the role of the actor in the theater.

Content Standard 3.0: Students apply and demonstrate critical and creative thinking skills in theater, film television, or electronic media.

Content Standard 4.0: Students recognize and explain how theatrical experiences contribute to a better understanding of history, culture, and human relationships.

Content Standard 5.0: Students make connections with theater, the other arts, and academic disciplines.

Although scripts may not be written down, the museum provides opportunities that encourage visitors to assume new roles, invent and sustain characters, communicate with others, and interact with others in play-acting situations.

Visual Arts

Content Standard 1.0: Students know and apply visual arts media, techniques, and processes. Content Standard 2.0 Students use knowledge of visual characteristics, purposes, and functions. Content Standard 3.0: Students choose, apply, and evaluate a range of subject matter, symbols, and ideas.

Content Standard 4.0 Students understand the visual arts in relation to history and cultures. Content Standard 5.0: Students analyze and assess characteristics, merits, and meanings in their own artwork and the work of others.

Da Vinci's Corner provides the opportunity to explore art at all levels of ability.

COMPUTERS AND TECHNOLOGY

Content Standard 2.0: Students use appropriate productivity tools including, but not limited to, word processing, spreadsheet, database, multimedia and telecommunications.

Content Standard 4.0: Students will identify, apply concepts, and manage various tools and resources to evaluate their accuracy and appropriateness in solving problems and making decisions.

Content Standard 6.0: Students will evaluate the impact and ethical implications on individuals, society and the environment.

Although computers are used throughout the museum as integral components of the exhibits, visitors use computers as tools in Build It, Da Vinci's Corner, and Space Odyssey, in addition to the Media Lab program room.

ENGLISH LANGUAGE ARTS

Content Standard 1.0 Students know and use word analysis skills and strategies to comprehend new words encountered in text.

Content Standard 2.0: Students use reading process skills and strategies to build comprehension. Content Standard 3.0: Students read to comprehend, interpret, and evaluate literature from a variety of authors, cultures, and times.

Content Standard 4.0: Students read to comprehend, interpret, and evaluate informational texts for specific purposes.

Content Standard 8.0: Students listen to and evaluate oral communications for content, style, speaker's purpose, and audience appropriateness.

Content Standard 9.0: Students speak using organization, style, tone, voice, and media aids appropriate to audience and purpose.

Content Standard 10.0: Students participate in discussions to offer information, clarify ideas, and support a position.

The museum is a print-rich environment that invites readers of all levels to use their reading skills as they interact with the many literacy opportunities throughout the museum. Signage is written clearly in an uncomplicated font. Print material, including books, is available throughout and is contextually tied to the exhibit content in each gallery. Opportunities for careful listening occur in traditional as well as unique ways including audio signage and stories, special environmental sounds, and video footage. The use of language is encouraged: many activities require cooperation, interaction, and communication with others. The role of spoken language is clear – talking, asking questions, making explanations are all crucial components of the museum experience.

FOREIGN LANGUAGE

Content Standard 1: Students engage in conversations, provide and obtain information, express feelings and emotions, and exchange opinions.

Content Standard 2: Students understand and interpret written and spoken language on a variety of topics. Content Standard 4: Students understand the relationship between the practices and perspectives of the culture studied.

Content Standard 5: Students understand the relationship between the products and perspectives of the culture studied.

Content Standard 8: Students understand the concept of culture through comparisons of the cultures studied and their own.

Content Standard 10: Students show interest in continuing the study of the foreign language for personal enjoyment and enrichment.

Activities throughout the museum provide opportunities for visitors to communicate as they engage in active conversation, express feelings and emotions, ask questions, and exchange opinions. The museum fosters an appreciation for cultural activities and social interactions between all people. A bilingual approach to all signage as well as multi-lingual components reflecting the many cultures of Nevada particularly in Nevada Stories and Build It, provides the opportunity to learn from one another's languages, learn new words, and foster an appreciation for others.

HEALTH AND SAFETY

Content Standard 1.0: Students will comprehend concepts related to health promotion/disease prevention (Core Concepts).

Content Standard 2.0: Students will demonstrate the ability to access valid health information and health-promoting products and services (Accessing Information).

Content Standard 4.0: Students will analyze the influence of culture, media, technology, and other factors on health (Analyze influence).

Content Standard 5.0: Students will demonstrate the ability to use interpersonal communication skills to enhance health (Interpersonal Communication).

Content Standard 7.0: Students will demonstrate the ability to advocate for personal and community health (Advocacy).

The museum promotes the health and safety of all visitors. Everyone is encouraged to communicate their thoughts and needs as well as demonstrate respect for one another. Health Care in My Town helps visitors understand and appreciate health and disease prevention. Build It features conservation and renewable energies and Water Works highlights water stewardship and care of the environment that impact the health of the area and of the world. In addition, safety rules are posted throughout the museum, particularly in areas that encourage physical activity such as in Build It, Cloud Climber, and Water Works.

PHYSICAL EDUCATION

Content Standard 1.0: Students understand and apply movement concepts and principles to the learning and development of motor skills.

Content Standard 2.0: Students demonstrate competency in many movement forms and proficiency in a few movement forms.

Content Standard 5.0: Students demonstrate personal responsibility, positive social interaction, and respect for diversity in physical activity settings.

The museum is a place that offers countless activities that encourage visitors to move and be physically active as they develop motor skills. In particular, physical activity is a prominent component in Nevada Stories, My Town, Build It, Da Vinci's Corner, Little Discoveries, Space Odyssey, Cloud Climber, Under the Stars, and Water Works.

MATH

Content Standard 1.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will accurately calculate and use estimation techniques, number relationships, operation rules, and algorithms; they will determine the reasonableness of answers and the accuracy of solutions.

Content Standard 2.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will use various algebraic methods to analyze, illustrate, extend, and create numerous representations (words, numbers, tables, and graphs) of patterns, functions, and algebraic relations as modeled in practical situations.

Content Standard 3.0: To solve problems, communicate, and make connections within and beyond the field of mathematics, students will use appropriate tools and techniques of measurement to determine, estimate, record, and verify direct and indirect measurements.

Content Standard 4.0: To solve problems, communicate, and make connections within and beyond the field of mathematics, students will identify, represent, verify, and apply spatial relationships and geometric properties.

Content Standard 5.0: To solve problems, communicate, reason, and make connections within and beyond the field of mathematics, students will collect, organize, display, interpret, and analyze data to determine statistical relationships and probability projections.

Content Standard 6.0: Students will develop their ability to solve problems by engaging in developmentally appropriate problem solving opportunities in which there is a need to use various approaches to investigate and understand mathematical concepts in order to: formulate their own problems; find solutions to problems from everyday situations; develop and apply strategies to solve a wide variety of problems; and integrate mathematical reasoning, communication and connections. Content Standard 8.0: Student will develop their ability to reason mathematically by solving problems in which there is a need to investigate significant mathematical ideas and construct their own learning in all content areas in order to justify their thinking; reinforce and extend their logical reasoning abilities; reflect on and clarify their own thinking; and ask questions to extend their thinking.

Content Standard 9.0: Students will develop the ability to make mathematical connections by solving problems in which there is a need to view mathematics as an integrated whole, identifying relationships between context strands, and integrating mathematics with other disciplines, allowing the flexibility to approach problems in a variety of ways within and beyond the field of mathematics.

Opportunities to use numbers in real-life situations exist throughout the museum. Many of the galleries, including My Town, Build It, Da Vinci's Corner, Space Odyssey, Comstock Lode Mining, and Water Works, offer the opportunity to use simple math and mental math, make estimations, take measurements, and use charts.

SCIENCE

Nature of Science

Unifying Concept A: Scientific Inquiry

N.2.A: Students understand that science is an active process of systematically examining the natural world.

N.5.A: Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.

The museum encourages visitors to use scientific methods to observe, explore, investigate, question, hypothesize, test, and make conclusions throughout the museum.

Unifying Concept B: Science, Technology, and Society

N.2.B: Students understand that many people contribute to the field of science.

N.5.B: Students understand that many people, from all cultures and levels of ability, contribute to the fields of science and technology.

Da Vinci's Corner, in particular, highlights the scientific accomplishments of Leonardo Da Vinci and the Entryway, Build It, Space Odyssey, Comstock Lode Mining, and Water Works show that many different people have made scientific contributions and discoveries.

Physical Science

Unifying Concept A: Matter P.2.A: Students understand that matter has observable properties. P.5.A: Students understand properties of objects and materials.

A rich variety of materials throughout the museum provide opportunities for observation, classification, and comparison.

Unifying Concept B: Forces and Motion

P.2.B: Students understand that position and motion of objects can be described.

P.5.B: Students understand that forces can change the position and motion of an object.

Activities throughout the museum provide visitors with opportunities to constantly engage in forces that change the position of objects including themselves.

Unifying Concept C: Energy

P.2.C: Students know heat, light, and sound can be produced.

P.5.C: Students understand that energy exists in different forms.

Energy in various forms is presented in the Entryway, Build It, Comstock Lode Mining, and Water Works.

Life Science

Unifying Concept C: Organisms and Their Environment

L.2.C: Students understand that living things live in different places.

L.5.C: Students understand that there are a variety of ecosystems on Earth and organisms interact within their ecosystems.

Flora and fauna native to Nevada are presented in Nevada Stories, Under the Stars, Cloud Climber and Water Works.

Earth and Space Science

Unifying Concept A: Atmospheric Processes and the Water Cycle

E.2.A: Students understand that changes in weather often involve water changing from one state to another.

E.5.A: Students understand the water cycle's relationship to weather.

Weather and the water cycle are presented in Water Works.

Unifying Concept B: Solar System and Universe

E.2.B: Students understand that there are many components in the solar system including Earth. E.5.B: Students understand characteristics of our solar system that is part of the Milky Way galaxy.

Information about the solar system is included in Space Odyssey.

Unifying Concept C: Earth's Composition and Structure E.2.C: Students understand that Earth materials include rocks, soil, and water.

Comstock Lode Mining provides information about rocks and minerals native to Nevada.

SOCIAL STUDIES

Geography

Content Standard 1.0: Students use maps, globes, and other geographic tools and technologies to locate and derive information about people, places, and environments.

Content Standard 2.0: Students understand the physical and human features and cultural characteristics of places and use this information to define and study regions and their patterns of changes.

Content Standard 3.0: Students understand how physical processes shape Earth's surface patterns and ecosystems.

Content Standard 4.0: Students understand how economic, political, and cultural processes interact to shape patterns of human migration and settlement, influence and interdependence, and conflict and cooperation.

Content Standard 5.0: Students understand the effects of interactions between human and physical systems and the changes in use, distribution, and importance of resources.

Content Standard 6.0: Students apply geographic knowledge of people, places, and environments to interpret the past, understand the present, and plan for the future.

Maps and other dimensional models assist visitors in identifying and locating and identifying places seen in many exhibits in the museum.

Civics

Content Standard 1.0: Students know why society needs rules, laws, and governments.

The entire museum presents activities that require visitors to interact in a manner respectful of rules that ensure safety and the enjoyment of the museum by everyone.

History

Content Standard 1.0: Chronology: Students use chronology to organize and understand the sequence and relationship of events.

Content Standard 2.0: History Skills: Students will use social studies vocabulary and concepts to engage in inquiry, in research, in analysis, and in decision making.

Content Standard 3.0: Prehistory to 400 CE: Students understand the development of human societies, civilizations, and empires through 400 CE.

Content Standard 4.0: 1 CE to 1400: Students understand the characteristics, ideas, and significance of civilizations and religions from 1 CE to 1400.

Content Standard 5.0: 1200 to 1750: Students understand the impact of the interaction of peoples, cultures, and ideas from 1200 to 1750.

Content Standard 6.0: 1700 to 1865: Students understand the people, events, ideas, and conflicts that led to the creation of new nations and distinctive cultures.

Content Standard 7.0: 1860 to 1920: Students understand the importance and impact of political, economic, and social ideas.

Content Standard 8.0: The Twentieth Century, a Changing World: 1920 to 1945: Students understand the importance and effect of political, economic, technological, and social changes in the world from 1920 to 1945.

Content Standard 10.0: New Challenges, 1990 to the Present: Students understand the political, economic, social, and technological issues challenging the world as it approaches and enters the new millennium.

The history of Nevada to the present and beyond is explored in the Entryway, Nevada Stories, Space Odyssey, Comstock Lode Mining, and Water Works.

INFORMATION LITERACY

Content Standard 1.0: The student who is information literate accesses information efficiently and effectively.

Content Standard 2.0: The student who is information literate evaluates information critically and competently.

Content Standard 3.0: The student who is information literate uses information accurately and creatively, Content Standard 4.0: The student who is an independent learner is information literate and pursues information relating to personal interest.

Content Standard 5.0: The student who is an independent learner is information literate and appreciates literature and other creative expressions of information.

Content Standard 6.0: The student who is an independent learner is information literate and strives for excellence in information seeking and knowledge generation.

Content Standard 7.0: The student who contributes positively to the learning community and to society is information literate and recognizes the importance of information in a democratic society.

Content Standard 8.0: The student who contributes positively to the learning community and to society is information literate and practices ethical behavior in regard to information and information technology. Content Standard 9.0: The student who contributes positively to the learning community and to society is information literate and participates effectively in groups to pursue and generate information.

Literature and literacy experiences in every aspect of the museum and inspires visitors to see, think, and do literacy activities in a most natural, contextual, positive manner.

Appendix G: Design and Fabrication Guidelines

General

All exhibits will be aesthetically pleasing and built to a high professional standard, ensured by the design and fabrication criteria below.

• All exhibits will have educational merit for children and their families and will promote childadult interaction.

• Exhibit activities should engage a minimum of 30 people in 1000 sq. feet of space.

• The exhibits shall be designed and fabricated to withstand the use of a minimum of 1,000,000 visitors over the course of 5 years with minimum maintenance.

• Exhibits will arrive with documentation. This includes "as built" blueprints, electronic schematics, inventory of parts and sources for objects, equipment and hardware, operating manuals, and maintenance requirements and a master schedule for repair and routine maintenance.

• Non-toxic materials and supplies must be used in all parts of exhibit components.

• All exhibit structures need to withstand "creative' visitor use which was not originally intended (i.e. climbing, moving, sitting, standing).

• The exhibits should have multiple-entry points, to prevent one-way movement through the space.

• An adequate path of circulation must be determined to accommodate both gallery and school tours.

- Every exhibit area should have ample seating for accompanying adults.
- Adequate sightlines for caregivers to watch their children are to be ensured.
- Adult sight lines and accessibility to all niches and crawl spaces will be provided.
- Provide for small nooks and crannies as well as larger, open spaces.
- Exhibit activities should not require staff interpretation.
- Exhibits shall be ethical, unbiased, accurate and complete.
- The use of objects of intrinsic value should be avoided since security is limited.

Materials and Supplies

• Quality hardwood plywood or MDF at least 3/4" thick (depending on the application) for structures will be used. No particleboard should be used.

• Hardware

Do not use self-closing or spring-loaded doors or gates.

Standardize hardware throughout each exhibit.

Hardware needs to be easily available locally, or extras should be supplied.

Industrial grade controls should be used.

Handles, pulls, etc. shall be easy to grasp with one hand and should not require tight grasping or twisting of the wrist to operate.

• The force required to activate controls should not exceed .5 LBF (pound-force)

• In areas accessible to all age groups, parts should not be able to be swallowed by toddlers or infants (an inexpensive testing device is available on the market to test small parts to see if they could be swallowed).

• All locks will open with a single key; a surplus of spare keys will be provided at delivery.

• Custom-created controls will come with all information on how to acquire replacements rapidly.

• All paint numbers and makes must be supplied. Paint is to be available at local outlets of

national brands. Painted wood surfaces are discouraged.

• A tool kit and set of touch-up paints will be provided at delivery.

Building Techniques

• Screws and bolts should be used whenever possible in assembling structure components. Heads should be countersunk, or cap nuts used where exposed.

• Peepholes and cutouts should be less than 4" in diameter or more than 10" in diameter, unless they are backed with Plexiglas.

• Special care needs to be taken to guarantee that counters, display cases etc., can withstand "alternative uses" (i.e. climbing and sitting) and unusual weight loads.

• Exhibit hardware and electrical equipment should be hidden or masked.

• All potentially dangerous corners and edges must be radiused to 1/2".

Structures

• Openings in railings should be less than 4" to prevent children from climbing through or getting their heads or extremities caught.

• Viewing cases, counters and tables should be accessible and comfortable for preschoolers as well as adults.

- Counters and worktops may need to be sloped to provide for wheel chair access.
- Stools and benches should be sturdy enough to withstand 'alternative' use and movement.

• Locks should be built into any cabinet, closet or storage area. One key should open all these structures.

- A floor length Plexiglas mirror should be placed in any "dress-up" area.
- Drawers and doors cause pinched fingers and should be avoided.
- Switches and controls for visitors should be located no more than 41 inches and no less than 15 inches above the floor.

• Any structure with a closed roof must take local fire code into account; if necessary, sprinkler heads will be dropped to the inside of the structure

Electrical and Mechanical

• All electrical outlets must be inaccessible to fingers.

• If lights are accessible to visitors, they must be caged.

• Inner workings of mechanicals should be inaccessible to fingers, but must be easily accessible to the staff for repair or adjustments.

• Appropriate cooling and air circulation needs to be built into cabinets holding computers and other electronic equipment. If there is a potential for heat build-up, the equipment needs good ventilation and air filtration as necessary.

• Lights, equipment and other regularly replaced items need quick-remove but secure access panels.

• Schematics of the electrical wiring should be in the equipment cabinet.

• Controls that transfer energy from users to exhibits must be designed to prevent the energy from transferring back to the user (i.e. slip clutch vs. free wheel).

• Electrical switching controlled by visitors must be tamper-proof.

• Operation instruction should be as brief and as simple as possible. Instructions should be mounted inside cabinets.

Equipment

• Alternative input devices (touch screens, mouse, joy sticks) are recommended for computers, rather than keyboards. If keyboards are used, the design should give visitors access only to the keys that are needed to run the program.

• Volume on audio equipment must be set at a safe level that cannot be adjusted by visitors, but is easily adjustable by staff.

Storage Space

• Locked storage for extra manipulatives, consumable supplies and demonstration carts needs to be built into exhibit components whenever possible.

Surfaces

• There should be no sharp edges. All edges need to be rounded, padded or edged with vinyl to prevent children from hurting themselves when they inadvertently run into them.

• Non-toxic, lead-free paint must be used on all painted surfaces.

• All wood members that are to be left their natural color must be sealed with a durable clear coat. This is preferable to paint.

Maintenance and Operation

• All surface areas must be:

easy to clean with non-toxic cleaners unbreakable lead-free

• All activities need to be easy to clean by the floor staff.

• All activities need to be easy to turn on and off by the floor managers, but these controls should not be accessible to the public.

Equipment and materials may need to be secured to prevent visitors from walking off with them. Any security measures should be as visually pleasing and professional looking as possible.
A complete checklist should be drawn up for routine maintenance, with recommended intervals for checking levels, cleaning vents, lubrication, and so on. This is an easy way to keep

maintenance records.

• An open-close checklist for daily operations will be included inside each cabinet.

• A troubleshooting guide should be prepared when symptoms of failure are predictable.

Flooring

• Changes in floor material must be safe and secure for wheelchairs, metal walkers, canes, the visually impaired and toddlers.

• Carpet should be used on most floors, steps, ramps, and climbing surfaces.

• Carpet should be an easy to clean, low-napped, nonabsorbent, industrial grade and have a high fire safety rating.

• Use standard (low-fume) carpet adhesive to allow for easy replacement.

• Indoor/Outdoor and foam rubber or plastic foam composition materials are not recommended.

• Exposed edges of the carpet shall be secured and have trim along the entire length of the exposed edge.

Labels

• Limit the use of flip labels, as they are difficult for some people with physical impairments to

use.

• 24-point font (or larger) will be used in text labels.

• Typeface shall be simple (san-serif).

• Upper and lower case shall be used.

• All text and labels shall be displayed within a comfortable viewing zone between 35" - 42" above the floor. Eye levels for children:

4-6 years35 inches6-9 years40 inches9-12 years43 inches

• Labels and text should not be placed on a glossy surface.

Reach

• Components should be made to accommodate reaches that are comfortable for young children in the 2-8 age range.

Suggested ranges are:

0	
Standing High Reach	44"
Standing Low Reach	18"
Reach Distance	18"
Sitting High Reach	37"
Sitting Eye Level	32"
Work Top	24"
Work Depth	13"
Table Height	18"
Standing Height	36-50"

Accessibility

• The activities in an exhibit must be accessible.

• Exhibit components must accommodate the variety of sizes ages, and physical abilities of our visitors. The following statistics are based on the average 5-year-old. (Accommodations for younger/older children and adults should be taken into consideration)

Optimal standing range for a visitor's reach is 18".

Average viewing height for visual material for standing exhibits is between 35" and 42". Standard table or counter-top height is 24" from the floor to the underside of the counter.

• Floor mounted display cases with solid sides that can only be viewed from the top shall not be taller than 24-26" from the top of the case to the floor.

• Cabinets and display cases should not extend beyond the footprint defined by the perimeter of the exhibit base.

• Objects and display cases or counters need to be carefully designed to prevent children and the visually impaired from walking into them.

• Objects projecting from a wall with their leading edges between 27 inches and 80 inches above the finished floor shall not protrude more than 4 inches from the wall.

• Protruding objects shall not reduce the clear width required in accessible spaces.

• Protruding objects should be a bright color to direct attention and indicate warning.

• Designers and fabricators are required to be in compliance with ADA regulations. At least 51% of all components should be accessible to physically handicapped children.

Clearance of Aisles and Pathways

• The minimum clear width for single wheelchair passage is 36 inches continuously.

• The minimum width for two wheelchairs to pass is 60 inches continuously.

• The minimum space required for a wheelchair to make a 180 degree turn in a T-shaped space is 36" width in each of the three corridors; 60" minimum depth in each direction.

• The minimum turning space for a wheelchair for a 360-degree turn is 60".

• The minimum clear floor space for wheelchairs may be positioned for forward or parallel approach to an activity.

The minimum clear floor space must always be next to (not in) an accessible route.

- Fire exit aisles must be at least 48 inches wide.
- Low entrances must be clearly marked to prevent adults from walking into them.

Level Changes

The following are the standards for level change. Because of the implications, all proposed level changes should be

considered carefully.

- Changes in floor height must be adequately marked and secured to prevent tripping and falling.
- Changes in level up to 1/4" may be vertical and without edge treatment.
- Changes in level between 1/4" and 1/2" shall be beveled with a slope no greater than 1:2.
- Ramps should be incorporated whenever raised platforms are used.
- The width of all inclines shall be a minimum of 48".
- The least possible slope shall be used for any ramp or incline.

• The maximum slope of any ramp shall be 1:12. The maximum rise of any ramp shall be 30". Ramps shall have level landings at the bottom and top of each run. Landings shall be at least as wide as the widest ramp run leading to it and shall be a minimum of 60" of clear space in length. If ramps change directions at the landing, the minimum landing size shall be 60"x60".

• If a ramp has a slope 1:15 or greater, then it shall have a handrail on both sides.

• Handrails on staircases and ramps shall have 12" minimum horizontal extensions at the top and bottom to indicate the last step or end of ramp.

• Handrails shall be continuous, smooth and round for a safe grip. The diameter shall be 1 1/4-

1/2" in diameter. It should withstand 200 pounds without flexing.

• Handrails should not be higher than 34" from the ground surface.

- The clear space between the handrail and the wall should be $1 \frac{1}{2}$ ".
- Ramps shall have non-skid surfaces.
- Guard railings and side wall heights should be 24-42" and should never be lower than 18".
- Guard railings must have a distinctive color from their surrounds.
- Stairs shall not have steps with abrupt nosings or open risers.
- Risers shall not be higher than 7 inches in height and stair treads should not be less than 11 inches in depth, measured from riser to riser.

• Treads should be non-skid.

• Stairs should be covered with materials that are easily distinguished from other surfaces so they can be seen by the visually impaired. They should have lighting of 20 to 30 foot candles.

Wheelchair Reach

• If the clear floor space allows for a forward approach, the maximum high forward reach allowed for an adult in a wheelchair is 48 inches and the minimum low reach shall be unobstructed and no less than 15 inches above the floor or ground surface.

• If the clear floor space allows parallel approach by a person in a wheelchair or other walking aid, the maximum high-side reach allowed shall be 54" and the minimum low side shall be no less than 9" above the floor.

108