The Science Zone
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October 16, 2017

Dear Involved Community Leader,

I appreciate you taking the time to learn a bit more about our vision for the Science Zone. We're looking at expanding our offerings to children and their families across our community, and state. Our goal is to provide exciting and interactive science experiences to as many people as possible, especially children. It is our hope that when children are excited by the sciences they will do better in school, and will take an interest in fields that are so crucial to our state's economy, livelihood, and history. The mineral-rich landscape of Wyoming has afforded our state to become a leader in many areas, and currently there is no large state-wide science center showcasing the science of Wyoming.

Casper is strategically located in a crossroads, and with one of the largest populations in our state, it makes sense that our community should host a science center that serves families across our state and region. Our goal is to create the Wyoming Museum of Science and Industry, or WYMSI for short.
The increased traffic to a stand-alone facility will do wonders for our annual attendance, program sign-ups, summer camps, and partnerships with other organizations like the Boy Scouts, Girl Scouts, Big Brothers Big Sisters, Boys and Girls Club, YMCA, and more.

Currently the Science Zone serves students through field trips from across the state. Unfortunately, we're not equipped to keep up with the demand. With moving into a larger facility with more classrooms, equipment, and staff, we'd be able to serve not only Casper, but our surrounding communities that don't have access to science centers.

For this dream to become a reality, we're going to need the support of our community and state, to be able to inspire the next generation of critical thinkers, and well-prepared citizens. We are asking for the help of involved citizens like you, to help us with our goals.

Sincerely,

Steven Schnell
Executive Director

Igniting, and Engaging Wyoming in Science and Technology

Over the past several months, we have been doing our homework on our needs in order to make this vision a reality. The next few pages will highlight some information on what we're hoping to achieve, and how we're planning to accomplish it.

We were donated a 18,500-square foot building for our museum. The building has a wonderful location, but unfortunately, it is missing some crucial components for a high-functioning science center. It doesn't have a loading dock, nor does it have the ceiling height we need to accommodate large traveling exhibits. The amount of money it would take to get it functioning is more than we would be willing to put into it. Instead of retro-fitting this building, our board has decided to sell it. One of our board members is a realtor and is taking 0% commission on the sale. Our current asking price is $775,000.00.

Our intention is to purchase a building at 222 E. Collins Blvd. in which to put our science center. It is 21,000 square feet, all on one level, and located very close to other great community assets like the Nicolaysen Art Museum and the Natrona County Library. The building is nearly move-in ready with a fire suppression system, loading dock, and a much larger parking lot to accommodate both busses, and our increased visitor traffic. It only requires us to add walls to create classrooms, offices and a few other items.

While the building appraised for $1,700,000.00, the owner is willing to let us purchase it at $1,240,000.00 and is giving us until October 1st to make him an offer. We have spent the past several months going through the building, doing our due diligence, asbestos testing (negative), and cost estimation to see what it would take for us to get up and running in the new facility.

In addition to the expense of purchasing the building, we would have remodeling costs, exhibit building costs, Fixtures, Furniture & Equipment, and an Endowment in order for us to be completely up and running.

Exhibits and FF&E can range greatly, from $500,000.00 – all the way up to about $4,000,000.00 for our exhibit space, depending on the complexity of the experience we're looking to achieve.
We're placing our exhibit budget right around $2,000,000.00 at this point.

Our remodeling costs are right around $2,000,000.00 – per GE Johnson & MOA's estimation. While this is our "sticker-price", our hope is to utilize many of our contacts to provide donated time and materials to construct things like walls for classrooms, and offices, which will greatly reduce our out of pocket expenses.

And lastly, our Endowment budget is set at $1,000,000.00. Monies placed in this account will help us sustain our operations for years to come.

Thus, placing our capital campaign budget around $6.9M. It may go up depending on contingencies for cost of construction with the unfortunate devastation to hit our gulf coast, and the fires in the western United States.

Ideally, we would do everything all at once, but with our timeframe for the building purchase, and the foreseeable increase in construction material costs, our first phase will be to get our building purchased.

We have several options for us to secure the building at 222 E. Collins.

1. Financing: We would be able to utilize the building at 701 Antler Dr. as collateral, as we take out a loan on the $1,240,000.00 which would bring our expenses each month to around $6,000-7,000. We would then utilize the sale of our building at 701 Antler to help pay off a large portion of the loan.
2. Find a donor who wants to help the Science Zone grow, who is able to purchase the building on our behalf. This donor would essentially become our "landlord", while we took care of the remodeling expenses, and entered into a lease to own contract.
3. We could potentially find a donor or two who would be willing to donate the purchase price of the building of $1,240,000.00 to the Science Zone, which would allow us to secure the property and move our science center project forward.

Secured Donations for Capital Campaign:

- 701 Antler Drive – Appraised at $830,000.00
- $80,000 Match
- $25,000 Donation
- Gross Income from our RV Raffle: Totaling ~ $80,000.00

$1,015,000 Donation Total

Our Vision

We envision a science center to serve the entire state of Wyoming, through interactive exhibits and programs allowing everyone and anyone an opportunity to engage in informal science education.

After visiting nearly two dozen science centers across the United States, we have compiled notes and pictures from our own observations along with our meetings with many museum directors and employees about what works well and what they wish they would have done differently in their space. Our goal is to create a state of the art science center to serve residents and tourists to the state of Wyoming while avoiding some of the common pitfalls for science museums. Taking into account the research on science centers we have conducted across the nation and input from local community members and businesses, we will be able to create a wonderful resource to teach and inspire people of Wyoming.

Exhibitions

Exhibits make up the main attractions of any science center but the key to successful exhibits is the ability for visitors to interact with different aspects of each exhibit and create their own knowledge through discovery rather than lecture. The primary roles of exhibits are to encourage visitors to engage, play, learn and problem solve – to get them thinking and engaging with the materials and with the people around them. We want our exhibits to be enticing and fun to interact with. Our plan with a new facility is to develop several exhibit galleries outlined in greater detail below. These areas may be developed all at once or during subsequent development phases. However, of great importance to exhibits is that some aspects will need to be refreshed frequently to ensure the visiting public has something new to experience each time they come down.

A common trend in some of the best exhibits we have seen is their open ended nature. Open ended exhibits provoke users to ask questions, allow them to manipulate components according to their curiosity, inspire them to think critically, and let them re-test over and over to analyze the outcomes and form their own understanding. Our goal is to primarily utilize exhibits with open-ended attributes. These exhibits will come from nationally sourced, travelling exhibits as well as in-house construction.

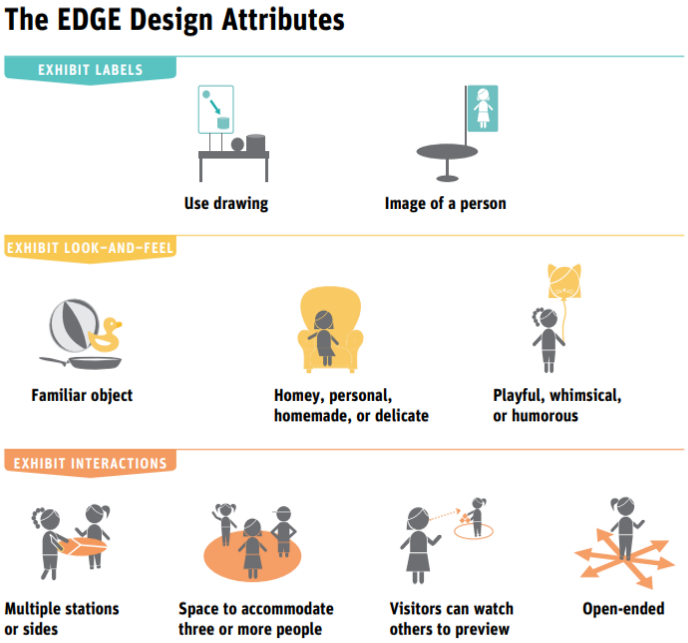
Exhibit Style and Attributes

All of the exhibits displayed within our facility will be intentionally chosen and designed to match the highest standards we have determined through our research of dozens of science museums nation and worldwide. Development of exhibits can be a complicated and difficult task. Some exhibits may have all of the seemingly exciting aspects, however, unless they're developed using thoughtful consideration, the exhibit will fail to educate or inspire visitors. A study was performed on which exhibit design attributes will specifically attract girls to engage with a particular exhibit. There are nine key design attributes that help entice girls to interact with exhibits. Luckily these attributes do not deter boys from engaging with exhibits.

While some museums spend literally millions of dollars of creating bright and colorful exhibits, one of the key components to exhibit engagement is directly related to natural materials. If exhibits are built from woods instead of plastics, visitors tend to spend much more time interacting with them.

Additionally, our exhibits will intentionally work to incorporate the arts into our exhibits. As the phrase “STEM” (Science Technology, Engineering, and Math) evolves into “STEAM” (A for Art), so are science centers. Incorporating artistic expression along with logical sequencing of events utilizes both sides of the brain. Many exhibits can be created or tweaked to have some element of artistic creativity. For instance – stop motion animation exhibits (as seen in this picture) encourage the visitor to develop a story for their character, and to create a character for their story before they begin engaging with the technology component.

EDGE
EXHIBIT DESIGNS FOR GIRLS' ENGAGEMENT



EDGE (Exhibit Designs for Girls’ Engagement) outlines a list of best practices for exhibit design that will be used to make sure our in-house and traveling exhibits appeal to all populations of visitors (Exploratorium, 2013).

In-house Exhibits

While we will continue to utilize professionally fabricated travelling exhibits, our staff are also highly capable of designing small exhibits to supplement our exhibit floor. The Exploratorium in San Francisco, CA is recognized among science museum professionals as one of the best in the world. They also have some of the best examples of open-ended exhibit design. Fortunately, they have published several

exhibit-plan books with specific instructions on how to build some of their most successful exhibits. These "cookbooks" as they call it, will be incredibly useful when adding to our general exhibit floor.

Building Sections

The floor of the building will be divided into several large exhibit galleries. Exhibits in each gallery will be designed to fit with an overarching theme. Visitors should be able to interact with the exhibits within the gallery to gain an understanding of smaller parts of a bigger picture. The galleries will be themed on Wyoming specific concepts as well as general science and engineering content. Here are a few ideas of exhibit galleries we'd like to showcase.

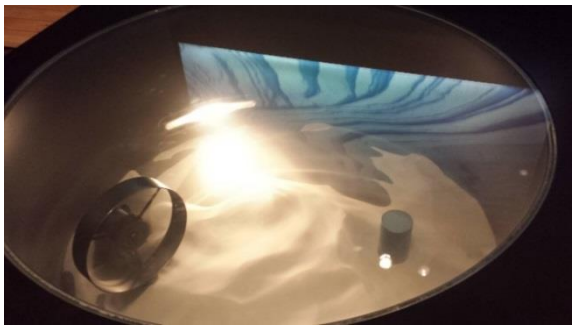
Exhibit Galleries > Science of Wyoming:

Wyoming is a unique and beautiful state. This exhibit is dedicated to exploring some of the natural beauty, geology, ecology, and science related to our great state. This gallery will be marked by a giant floor sized map of Wyoming that reflects major roadways, and towns within the cowboy state. The mountain ranges will be topographically lifted off the floor, high enough to create an obstruction that causes those walking through the gallery to move around them and have an immersive Wyoming experience.

The exhibits for major Wyoming features will be small and able to rotate in and out of specific areas of the room to help keep this exhibit area fresh, and exciting. Some topics for interchangeable exhibits include erosion, weathering, and other geological processes near the mountain ranges. A life-like Devils Tower featuring rock climbing and information on the geologic and cultural significance of the America's first National Monument. An interactive fly-tying game near the Casper and the Platte River will highlight one of our region's greatest recreational activities. In this exhibit, participants would learn about entomology and ecosystems by choosing what type of fly to make, "go fishing" virtually, and see what type of fish they catch with their fly.

Yellowstone National Park will be a featured area in the Science of Wyoming gallery and will include a model of Old Faithful geyser with interpretation on thermal features and timed to erupt at the same interval as the real one. An interactive exhibit on trees will address how each type populates specific ecosystems in Wyoming and will explore how environmental changes such as beetle kill, drought, and wildfire affect their populations. Evergreen and deciduous trees will be displayed on a screen and visitors will be able to change the environmental factors on a nearby control panel to see how each impacts populations of trees in certain areas of the state.

An exhibit exploring wind and windblown sediment will be used to demonstrate how snow-fencing keeps our roadways clear of snow during snowstorms, would be highly relevant during the winter.



Aeolian Landscape: Windblown snowdrifts across Wyoming

Like the rest of Wyoming, Casper Mountain has an incredibly rich geologic history and would be highlighted in the Science of Wyoming Gallery. The recently published Casper Mountain field guide shows just how old the geologic formations of our area are. To help engage and immerse visitors in the geologic timeline, we would create a rock wall with the different layers of the earth along with their relative ages. To further help visitors grasp the enormity of the geologic timeline, we would include a drawing to scale on the sidewalks surrounding the building.

Example of using local rock features

Overall, this area of the science center will utilize a place-based approach to education and highlight the interesting and important aspects of life in Wyoming. Place-based education has been shown in countless research articles as an important method for creating authentic learning experiences and developing a sense of community and citizenship. By having our visitors learn more about the science happening in their own backyard, they'll look at our community through a new lens and be more likely to stay engaged in the happenings around them.

Outdoor timeline of the earth

Placed Based Education

Exhibit Galleries > Energy of Wyoming:

The history and future of Wyoming can't be separated from the development of its rich, diverse natural energy resources including coal, oil, natural gas, uranium, wind, solar, hydroelectric, and geothermal. The Energy of Wyoming gallery will pay tribute to this important aspect of our state and will help visitors from Wyoming and abroad explore the science and technology that has been used in the past and will continue to change into the future.

In one part of this immersive interactive exhibit, visitors will don the guise of a miner and head "underground" into the subterranean environment to learn about the different natural resources located below our feet. Interpretation on the geologic formation and extraction technologies for oil, natural gas, coal, and uranium will all be showcased underground. Each resource will have a related activity to explain how each is mined, refined and used in our daily lives along with interesting facts about each.

Section of mining truck tire

Additionally, the technology related to natural resource development is impressive and allows us to highlight several local and regional businesses. Local companies like Westech provide truck beds that go on some of the largest mining trucks in the world. Showcasing a piece of a tire for visitors to understand the scale would be an incredible asset to have inside our science center.

After going through the mine shaft the visitors will exit onto the great windy plains of Wyoming where they will see a mural with a wind farm painted in the distance. In the foreground, there will be an enormous wind turbine spinning, overhead. Visitors will be able to work at exhibit tables with wind turbines and a nearby house. The challenge is to power a house utilizing the wind energy created by their wind turbine. A collection of turbine blades will be on hand for experimenting with, changing the angles, number of blades and direction of the nacelle will determine how much each turbine will produce as it is being blown by a fan.

A similar solar panel exhibit will be adjacent to the wind turbine area and will include a mural depiction of a solar panel field and several buildings and streetlights that can be powered by the use of the solar panels. When the panels are moved out of the direct sunlight the lights turn off, however, when placed properly the lights will come on.

Continuing, a geothermal display will incorporate the power of underground energy once more in a similar challenge to visitors.

Finally, our visitors move to hydroelectricity area of the Energy of Wyoming gallery. A large model of Pathfinder Reservoir, the North Platte River and Alcova Reservoir will be filled with water where visitors will get to interact with dams to generate enough hydroelectricity to power buildings. A skyline of the city of Casper will accompany the exhibit along the North Platte where various lights will come on in sequence. The amount of light illuminated will be directly related to the efficiency of the dam and the water diversions. Because of the popularity of interactive water exhibits, this showcase exhibit will be one of the most played-with in the entire museum and will require careful attention to detail to ensure the visitors will be enjoying themselves safely while learning. Safety is also of utmost concern in this exhibit; the floor will be constructed of a porous material that allows spilled water to pass through while not becoming too slippery. Nearby hand driers and ponchos will assist those who get a bit too carried away with their exploring!

In summary, the goal of the Energy of Wyoming exhibit is to have visitors really understand where our energy comes from, the role Wyoming has and will continue to play in the nation's energy production, and how interconnected energy production types are in making our daily lives possible.

Exhibit Galleries > General Science:

While themed galleries are key to help explain related topics, and scientific principles, the general science areas of museums typically have a variety of learning opportunities presented in a plethora of ways. Because science is a very broad area that includes an immense array of smaller subtopics, many of the great science museums, like the Exploratorium and the Denver Children's Museum, have incredible and diverse learning opportunities presented in general science galleries.

Because there are so many sciences to choose from, the General Science gallery is perfect for us to be able to interchange exhibits frequently to let visitors learn new things with each visit. A few categories of general science we would like to highlight initially include:

Social Science

Social science experiments to try with partners or groups of people encourage visitors to work together and promote teamwork, and provide a testbed for observing human interactions and tendencies.

Figure 1: Drinking Fountain v Head Squirt

Examples shown here include an experiment whereby two visitors have the option of giving their partner a drink from a drinking fountain, or a squirt on the forehead. The interaction tends to make visitors think about empathy for their partner. Figure 1.

Randomly formed groups can generate instant rivalries. Whats happening in the picture to the left: Neither team of visitors have a history, but competition can esclate quickly. The interpretation of this exhibit reads "*Scientists have found that even when groups are created randomly, people may quickly favor their own group and see others as threats. We may also perceive other groups as less diverse than they really are- the outgroup homogeneity effect. When we don't belong to a group or know much about its members, we may see them as "all the same."*

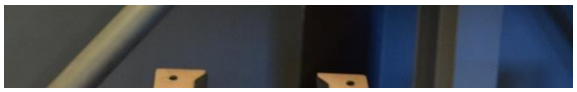
Physics

General phsyics exhibits give visitors an opportunity to test out Newton's laws and gravity on a wide variety of materials. The more interesting, interactive and open-ended the better.

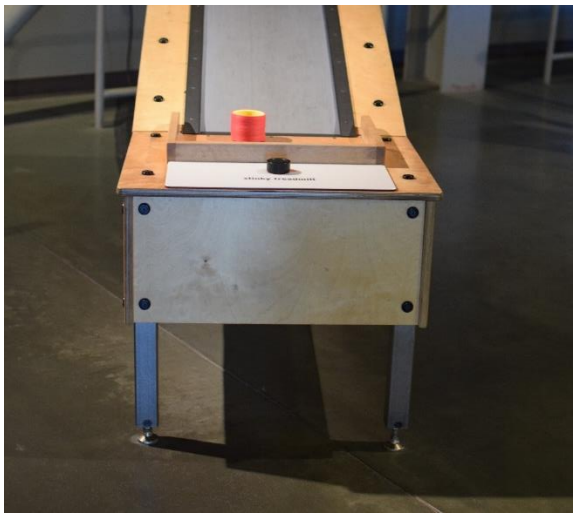
Chaotic Pendulum

Sand Art on spinning disc

In the above Sand Art exhibit, a large spinning disc sits on a table. Several differnet implements such as balls, and discs with various weights are available for visitors to interact with. The open-ended nature of this exhibit allows users to try almost anything. With no written prompts, part of the learning of this exhibit is getting people to figure out how to interact with the objects. Visitors typically stay at exhibits like these for much longer.



Slinky on a treadmill



Brain Teasers

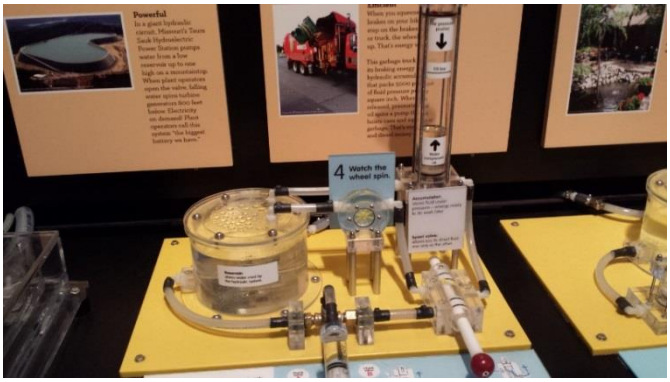
Exhibits like these allow for visitors both young and old to exercise their minds. There are many simple logic puzzels and brain teasers that can be created as a hands on exhibit. Currently at the Science Zone we have seen many people enjoy and struggle with some of our brain teasers.

Another aspect of exhibits is communication. In this exhibit to the right, visitors are required to describe the step by step process of how to build a tower to their partner. Having to interpret instructions is an incredibly useful skill for any budding scientist.

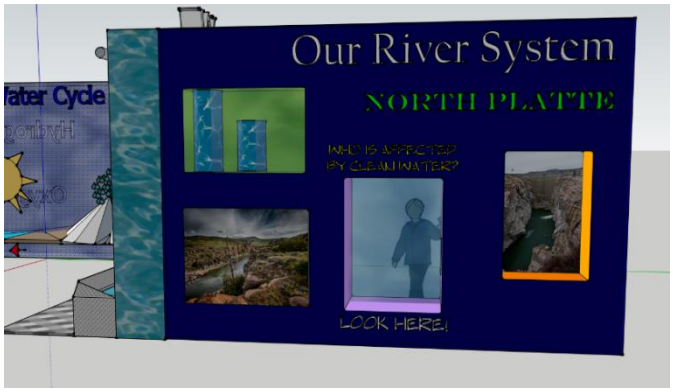
Water Exhibits

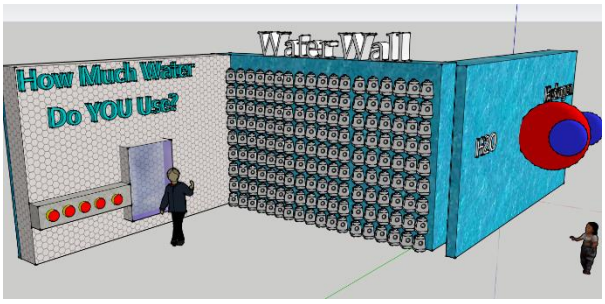
While nearly 70% of our Earth is covered by water, only 2% of Wyoming is covered by surface water. Water truly is one of the greatest driving forces on Earth and captures the minds of all people. It therefore provides some of the most engaging and interactive exhibits. The physics of water can be fascinating, and creating a space where visitors are able to learn through play can be one of the most exciting aspects of a museum.

The exhibit to the left focuses on the flow of water, and how with simple adjustments in a water trough, flow can change from being calm and serene to violent. Relating this to river safety in our North Platte River is important to help prevent water-related issues.



Water batteries, pumps, locks, dams, valves can all be experimented with. Many of these devices are utilized throughout our community to help process our drinking and waste water supplies.





Although water is abundant throughout our planet, it is also a resource which we must use wisely. Discovering about our local watershed and how it impacts wildlife, and our community is an integral component of creating responsible citizens.

Interchangeable Exhibits

There are countless topics to keep rotating through the science center. Additional interchangeable exhibits on health, complicated math equations, fun science facts, and more will make excellent rotating exhibits for our museum.

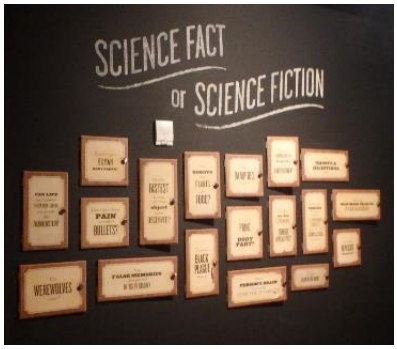
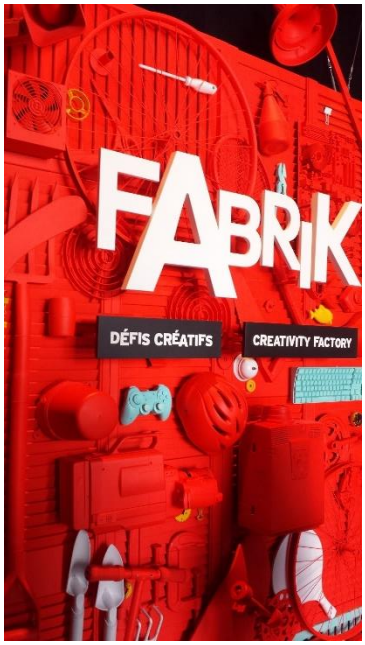


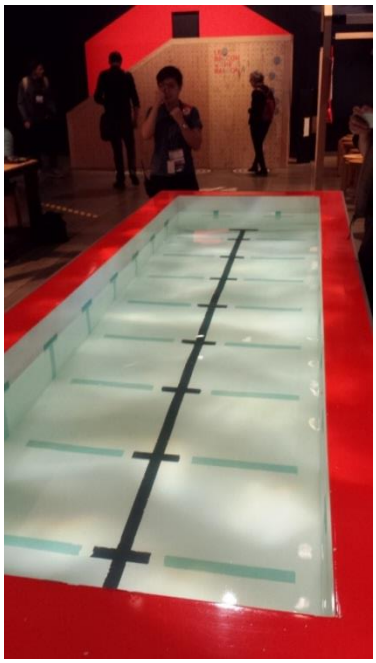
Exhibit Galleries > Makerspace:

Makerspace exhibit areas allow visitors to build using simple materials to either accomplish a specific task, or sometimes just create something for the joy of it, and they are becoming more and more popular in science and technology centers worldwide.

Armed with simple tools and supplies, visitors are challenged to think critically and spatially as they develop their contraption or creation. At the Montreal Science Centre in Quebec, Canada the visitors are faced with several different challenge prompts. Using the various tools and materials at hand, they create something that will complete the challenge or mission objective of the station they're at.



Examples include creating a boat that can hold a certain amount of weight or a self-propelled device to go along a high-wire.



Furthermore, makerspaces can be utilized for guided field trips, afterschool program, and summer camps allowing students the opportunity to think and tinker while using more advanced tools and materials to create even larger projects over the course of weeks or months.

Our goal with the Makerspace exhibit gallery is to create something that both the general public can interact with for a few minutes and be exposed to tools and ideas they might not otherwise encounter. The Makerspace should be multi-functional and allow for large and small scale projects by both public visitors and program participants.

Programming

Educational programming will continue to be at the core of operations, and as Wyoming's only science center, we envision a broad reach for our programs from locally based classes to outreach events that take our unique programs to communities large and small in all corners of the state. Regardless of the program, our style of education is highly engaging, hands-on, and inquiry-based allowing students of all ages the opportunity to use authentic science and engineering tools, like scalpels and soldering irons, to help them form a deep understanding of a wide range of science content in a memorable way.

Students participating in summer camp and field trip programs, dissecting worms, reverse engineering a boombox, and using chemical reactions and the scientific method to identify a mystery material.

We currently meet our educational goals with a wide range of programs including field trips, in-school presentations, teen programming, afterschool, preschool, and homeschool programs, weekend classes, family programming, monthly events, summer camps, adult classes, and community outreach events. However, the demand for programs is growing, but the space we currently occupy cannot accommodate everything. With more and different classroom space, expanded exhibit space, and a larger parking area we hope to grow our programs and serve many more families.

Field Trips

One of the cornerstones of our education program is our field trips that allow students to participate in an authentic science or engineering experience as well as gives them the unique and memorable chance to learn through play in our exhibit area. Our activities are all aligned with classroom standards making it easy for teachers to know that their curriculum needs are being met with a field trip to our facility. We typically see 1-2 groups a day that range in size from 10-60 students plus chaperones. In our current space, we are not able to meet all of our field trip needs. Our classrooms are cramped when we entertain groups of 50 or more elementary students and their size and proximity prevent us from being able to host two or more groups at a time. Technology is becoming an ever important topic to students and teachers and our classroom technology is too outdated to support current software when we host computer game design or Lego robotics classes. Additionally, our classrooms are without sinks or proper chemical storage and disposal limiting the content we are able to teach.

A new facility will include multiple, flexible classrooms that will allow us to accommodate multiple small classes or one large group by being convertible. The classrooms will all include sinks, storage, and appropriate technology to allow us to easily access common classroom materials, do messy experiments, and use the appropriate tools to help explain key concepts. One classroom should be able to accommodate computers and other technology like our 3D printer to allow us to continue growing our already popular Lego robotics, computer programming, and computer-aided design classes. In addition to classrooms, the layout of the building will be designed so that students arriving on field trips are able to enter through a separate door. This will allow them safe access and keep students from getting lost or distracted in the vibrant shuffle of the rest of the museum. It will also allow for bus parking in a separate location to facilitate the entry of regular museum visitors.

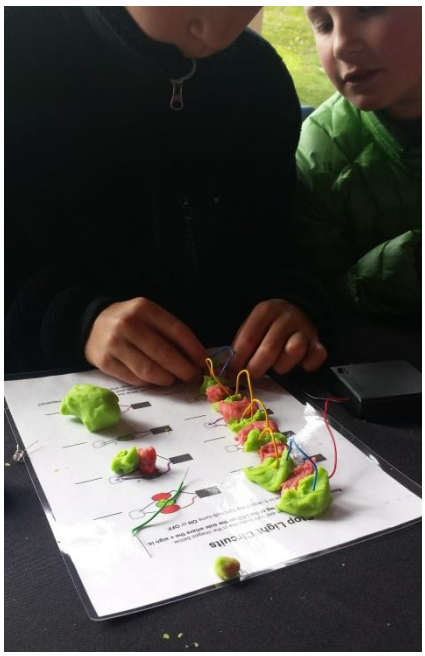
Multiple flexible classrooms will be helpful in allowing us to serve schools from far away. We currently serve schools that travel from up to 3 hours away and have planned a day-long field trip to Casper. These groups need a place to eat lunch and spend some free time. With multiple classrooms, the students can use one for lunch and one for classroom without having to worry about being cramped with all of their belongings and also avoiding have to be mixed in with all the other museum guests on the floor while they eat.

Pop-Up and Drop-In programming

In addition to classroom activities, the new science center space will be equipped with a small stage area that can be used flexibly for exhibits, but its primary use will be for pop-up activities to engage regular museum visitors throughout the day. These activities will be run primarily by volunteers and college interns but will be an important way to engage children and families in a different way from the standard exhibit interaction. It is also a way to provide additional learning opportunities for our guests who may not be able to afford or make a time commitment for a typical class or camp. Our preschool programming is currently offered in this manner and has been growing continuously since this change in the spring of 2017. Pop-up programming is designed to be exploratory in nature but because it is led by staff, participants are engaged in the content even further by responding to open-ended questions and prompts that require critical thinking to create connections between concepts. Pop-up activities span a range of topics and activities from bridge engineering to animal camouflage to chemical reactions to constellations and more.

Community and State Outreach

Beyond the students and families of Natrona County, educating the youth across our state is important to our organization. Being able to provide outreach is crucial to the numerous small towns without science museums, especially given the recent adoption of new science standards by the Wyoming Department of Education and the need for students and teachers to have access to effective and engaging ways to teach a wide range of science and engineering concepts. A new science center will become a hub for science education not only in Natrona County, but for all of Wyoming.



Statewide outreach: Here our staff serve 200 students from Western Wyoming with hands-on learning opportunities at the Jackson Hole WILD Festival.

Because we are Wyoming's only science center, it is our responsibility to conduct outreach to smaller towns around Wyoming and provide students across the state with a unique opportunity to interact with traveling exhibits and participate in lessons and with materials they may otherwise not be able to. Part of our future programming will include an outreach vehicle to travel to schools across the state throughout the year as well as a mobile museum built out of a tractor trailer or retrofitted mobile home, similar to the bookmobile. The mobile museum will include teaching materials for use by outreach staff in distant classrooms as well as mini-exhibits that have been designed to travel such as our Van de Graff static electricity generator, wind tube, simple machines, nanotechnology, and lunar motion exhibits, among others. It will also be able to transport makerspace technology like a 3D printer to give students in all parts of the state the ability to interact with cutting edge technology and create something memorable. The traveling science center will be able to be stationed at schools and community centers throughout the state for a few days at a time. Staff traveling with the exhibit will be able to teach in classrooms and offer public hours to allow families to visit in the evenings.

Examples of mobile science centers.

Transportation is a major obstacle not just in accessing communities across the state, but also in accessing resources within our community and county. The new science center will accommodate a mini-bus to allow us to transport students from schools to our after school programs at the science center, similar to how the Boys and Girls Club in Casper is able to transport students to their branch campuses. The mini-bus will also afford us greater flexibility and learning opportunities within our own community for participants in our afterschool and summer camp programs. Field trips are exciting and fun, however with the ability to take small groups of kids on fun adventures to the various outdoor opportunities we have in our area would make our field trip offerings much more exciting. Taking kids up to Casper Mountain, Alcova Reservoir, Edness K. Wilkins State Park other various places would give them the opportunity to learn about outdoor sciences. Taking small field trips to the wind turbines, or out to an oil rig would showcase real world application of the sciences being taught in our classes. A small 15 passenger bus will allow us to accomplish these tasks and much more.

Summer Camps

Our summer programming is diverse and provides incredible exposure to a range of science and engineering concepts to students ages 5-14. We offer dozens of unique opportunities from animal science to Lego Robotics, zombie survival to computer game design. We also are able to partner with other local organizations in the summer including the Nicolaysen Art Museum and Casper Planetarium to provide greater depth to some of our camps. Each summer, the demand for our programs frequently outstrips our ability to provide it with most of our camps filling up completely. We would love to be able to offer more camps, but we are limited in what we can provide based on the classroom space we have available. We have found it prudent to divide students based on age into groups ages 5-6, 7-9, and 10-14, but that stretches our space almost beyond its capacity. On many occasions in the past, we have had to turn down field trip requests because we just don't have space to put all the students. Having four flexible classrooms will allow us to maximize our space and host three age groups of camps as well as a field trip each day during the summer.

Summer Camp activities range in length and content but serve 120-180 unique students ages 5-14 each year. Left: Campers use Scratch Animation from MIT to design their own computer games. Right: Campers learn about local ecology and environmental science at the Platte River at Edness K. Wilkins State Park.

Teen Programming

An important part of our vision for science education is to create a pipeline for students to participate in our programs from preschool through college. However, as students age, their needs become different. In terms of high school students, they can learn a great deal of science and engineering content from their classrooms, but we provide a unique opportunity for them within our facility. Teens are able to participate in our Explainer program, which is modeled after a similar program started at the Exploratorium in San Francisco, CA. In the Explainer program, participants become a part of the science center team and develop not only their knowledge of some core science concepts, but also career readiness skills relating to work ethic and customer service. Explainers help operate our community outreach events, summer camps, and birthday parties.

Teacher Professional Development

We also envision the development of a professional development center for local and statewide science teachers. The use of the classrooms, one-of-a-kind teaching materials, state of the art makerspace technology, and exhibits will be all encompassed within learning opportunities for teachers to help them develop their confidence and skills in the areas of science and engineering education. As the Wyoming continues to fully implement the new Wyoming Science Standards, teachers will be keen to learn more unique ways to incorporate science into their classrooms and will want access to resources within their communities.

Our professional development will be led by our seasoned education staff and supported by faculty within the college, university, and local school district. It will include intensive summer programs to dive deep into content areas as well as several shorter meetings throughout the year to help teachers continue to implement programming. The new building will also include a storage area that will be able to hold materials specifically for check out by teachers. These materials will cover a range of science topics including forces and motion, chemical reactions, environmental science, weather and climate, and space science – all the key areas that teachers will be looking to incorporate following the new state science standards. The resources will be highlighted in the professional development trainings and will be available for use in classrooms.

Family Programming

In addition to becoming a hub for students and educators in Wyoming, we seek to become a go-to community resource for families, residents of all ages, and tourists. We already interact with tens of thousands of local community members through outreach events annually, but our educational offerings are diversifying each year to attract and educate new audiences. We have developed a yearly rotation of open houses that are each themed around a current topic in science and engineering or an upcoming event. Open houses attract families who don't normally visit our center because they offer unique once-a-year opportunities. Two of our open houses include Open Hearts, near Valentine's Day, where we offer heart dissection and other heart related educational events and Nano Days in March related to the ever evolving field of nanotechnology. For these events we frequently bring in local business, non-profit, or college volunteers to share with our guests.

Makerspace activities on weekends are another way that we engage families in unique ways. As discussed in the exhibits section of this document, the concept of a makerspace is to provide an area for visitors to stretch their creativity, learn a new skill, and apply both to create something tangible. Because the makerspace activities frequently involve using materials like hammers, soldering irons, and other tools and technology, parents often play an important role in the creation of the daily project. Makerspace participants have the opportunity to build things like a wooden marble maze, electric jack-o-lanterns, use a 3D printing pen, practice simple computer coding, and in general, be exposed to tools or technologies that they might not otherwise have access to. The goal of the makerspace is to provide access and build confidence and competence in participants. Because this is such a unique opportunity in our community, the early makerspace events have met with incredible interest and positive feedback.

Left: Learning to use a 3D printer pen to make the Eiffel Tower in a makerspace class. Right: Families working together to dissect a donated elk heart during our Open Hearts open house.

Adult Programming

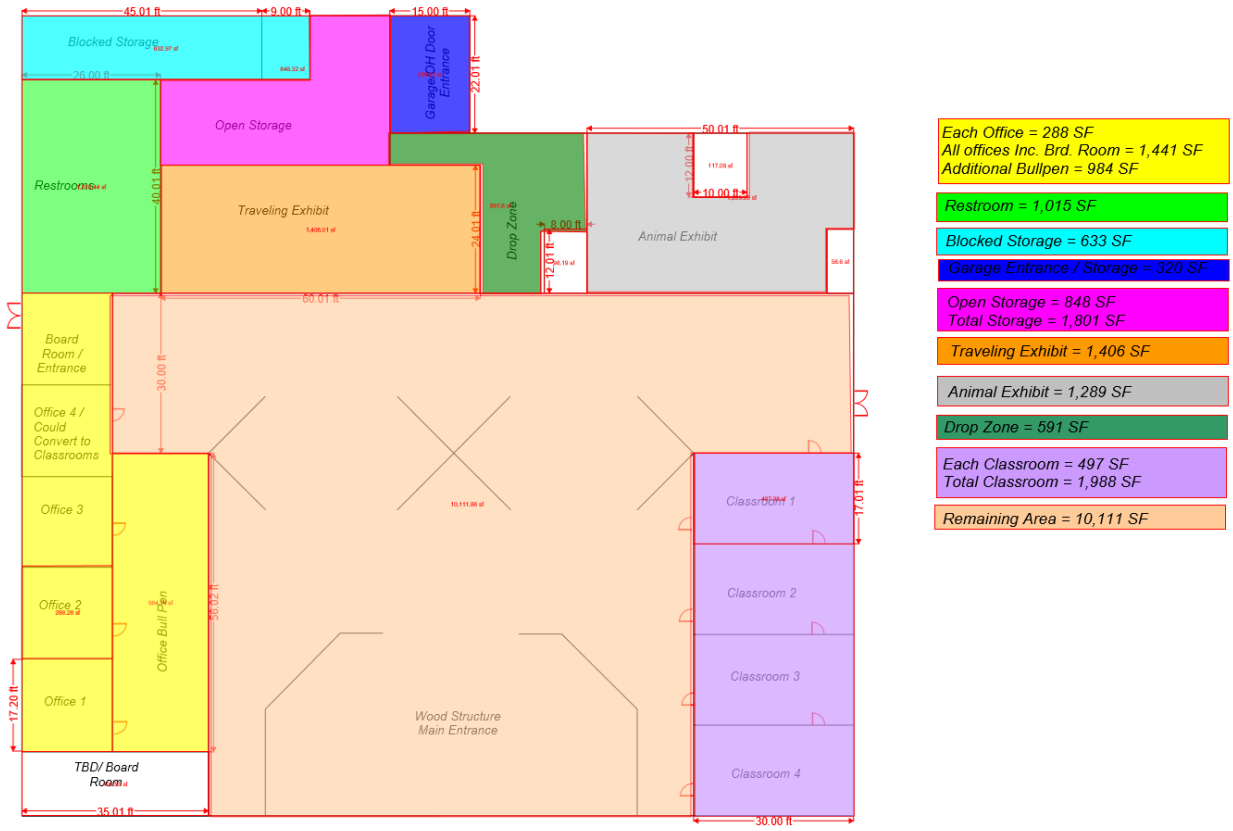
The visibility of a new, centrally located science center with state of the art exhibits that appeal to both children and adults will allow us to expand our adult programming. Over the past year we have been working to expand our adult programming by teaching classes to senior citizens and also offering 21+ events after hours. Researchers contest that because only 5% of a person's life is spent in school, most of what the average person learns, especially about science, happens outside the classroom in informal learning centers like science museums (Falk & Dierking, 2010). This is supported by our own observations of parents frequently heard saying, "I never knew that!" when they interact with exhibits. A new facility will help us attract adults, particularly young adults without children and allow us to serve a new population. Adult evenings will be coupled with a theme for the event and programming developed just for the occasion. Adult programming ideas include the science of fermentation, being a kid again and playing with childhood toys like Legos, and current events.

Building Exterior Design Styles

Although these designs were originally intended for the building on Antler Drive, they embody our vision to create a vibrant building that is attractive to visitors. Many of the styling ques would be used on the exterior of the building at 222 E. Collins.

Several other renderings below: Including a rendering of the building at Collins.

Interior Building Design



Floorplan for the building at 222 E. Collins provides offices, classrooms, traveling exhibit spaces, storage, and a large footprint for exhibits.

Stylized renderings of vibrant interior spaces for our science center.

Capital Campaign Costs

Wyoming Museum of Science and Industry	
Building Costs	
Building Purchase	$1,240,000
Remodeling Construction	$2,081,000
Building Utilities - 3 years	$57,000
Subtotal	**$3,378,000**
Project Costs	
Exhibits	$2,500,000
Endowment	$1,000,000
A/E Fees	$208,000
Furnishings & Equipment	$160,000
Miscellaneous	$150,000
Technology	$80,000
Subtotal	**$4,098,000**
Total Capital Campaign Budget	**$7,476,000**

GE Johnson's Cost Estimation:

Section	Description	Cost	Applicable Square Feet	Total
Main Area	This area is in great shape, but $10/sf will cover minor adjustments, touch up, misc. ceiling repairs, etc.. We do not have to do this, but for budget purposes, I would carry something.	$ 7.50	10,784	$ 80,880
Loading Dock	Very limited scope, but functional	$ 50.00	300	$ 15,000
Storage Area	Very limited scope, but functional	$ 25.00	1,561	$ 39,025
Traveling Exhibit	Complete Renovation	$ 100.00	1,471	$ 147,100
Offices, Classrooms	Complete Renovation	$ 35.00	4,916	$ 172,060
Animal Area		$ 100.00	1,317	$ 131,700
Air Handling Units	Replacement of Both	$ 70,000.00	2	$ 140,000
Overall Bldg.	Electrical / HVAC / Plumbing / Sprinkler Modifications	$ 22.00	21,364	$ 470,008
Restrooms	Fixtures	$ 2,500.00	11	$ 27,500
Restrooms	Adding / Reformatting RR's	$ 100.00	1,015	$ 101,500
Windows	4 Windows in Office, 4 in Classroom. Demo, Lintels, Glass, Minor Block Work & Patching.	$ 6,500.00	8	$ 52,000
Exits	Side and Rear Exits	$ 10,000.00	1	$ 10,000
Lighting	Exterior Lighting Upgrades	$ 50,000.00	1	$ 50,000
Exterior Siding	Dress up outside of building, front, and 2 sides.	$ 15.00	8,820	$ 132,300
Misc. Site Work	Entire Property	$ 5.00	33,000	$ 165,000
			Sub Total	**$ 1,734,073**
Contingency	Misc. Indirect Costs	20%	1,734,073	$ 346,815
			Total Building Renovation Budget	**$ 2,080,888**

It is our hope that we find involved community members who wish to see this project become a reality. While we still have many decision points on the road ahead. We are seeking the support of foundations, and donors to help us create something wonderful for the community of Casper, and for our beautiful state.