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SLOAN*LONGWAY MEMBERSHIP
Sloan Museum and Longway Planetarium would like to thank its members, patrons, and volunteers in the community for their support and input during this master planning process. It is your vision through suggestions, interactions, and visits that have helped drive this process to create the new vision for Sloan Museum of Discovery.

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SLOAN MUSEUM OF DISCOVERY | EXHIBIT MASTER PLAN
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1.0 INTRODUCTION

ORGANIZATION HISTORY

In 1952, the greater Flint community began planning for a College and Cultural Center. Funds were secured to build seven independent cultural facilities in a park-like setting east of downtown Flint. The Longway Planetarium opened in 1958 as Michigan’s largest planetarium facility with a variety of star and astronomy shows. The Alfred P. Sloan Museum and its Perry Archives opened in 1966, as a local history and transportation museum with much of the early collection donated by the Genesee County Historical Society. Originally, the Sloan Museum and Longway Planetarium operated separately under the umbrella of the Flint Board of Education.

In 1993, the Board of Education divested its Cultural Center holdings, forming the new Flint Cultural Center Corporation as the property owner. In 1999, the Sloan Museum expanded the Perry Archives building to form the Buick Gallery and Research Center to display its growing automotive collection. The Perry Archives has been home to the Flint Genealogical Society since shortly after the museum opened in 1966.

In 2000, the planetarium building underwent a major expansion both of the facility and educational programming. Additional classroom spaces, new offices, and a larger lobby area greatly enhanced the versatility of the facility. Longway Planetarium’s Learning Center provides opportunities for fascinating new educational experiences, which include hands-on science demonstrations, astronomy classes, and telescope workshops.

In 2004, management of Sloan Museum and Longway Planetarium was combined into Sloan*Longway. Today they serve more than 150,000 visitors annually including 60,000 schoolchildren, providing extensive standards based learning experiences in science and history.

In 2015 the Longway Planetarium Theater, Michigan’s largest, received a major renovation, placing it on the cutting edge of planetarium technology and allowing for more diverse educational and entertainment opportunities.

Sloan*Longway has been fortunate to serve many volunteers and researchers looking for local and automotive history. We are proud to have the privilege of preserving, collecting, and presenting Genesee County’s history. We relish the opportunities we have been given to provide science and history experiences to tens of thousands of regional school children and audiences. But the current Sloan Museum exhibits and programmatic spaces make it difficult to meet our mission.

PROJECT HISTORY

In 2014 a visioning process lead to a new direction for Sloan*Longway, with a focus on youth, interactive experiences, education, engagement and an updated mission statement. This change lead the FCCC Board and Sloan*Longway Governing Council to create Building and Fundraising Committees with the mission to transform the Sloan Museum into an interactive discovery museum with a focus on science and history in the fall of 2015. This document is the results of the Building and Fundraising Committees efforts working with staff, volunteers and community partners to create a new museum to meet these goals with the new name of Sloan Museum of Discovery.
SLOAN MUSEUM OF DISCOVERY MISSION

We inspire youth, families, and patrons to discover science, history, and technology through engaging learning experiences.

VISION

Staff and volunteers are committed to making the institution the premiere regional destination and trusted resource for science and history.

We will strive to be innovative and engaging in the ways we create, present, and deliver educational experiences in science and history to the community. We will represent the diversity of our community through inclusiveness in our staff, volunteers, programs, collections, partnerships, and exhibits. To make the Sloan Museum of Discovery a welcoming and compelling life-long learning space, we will provide excellent internal and external customer service.

New exhibit spaces give our community new opportunities to learn about science and history through exploration, discovery, and action. Improved facilities allow the entire community to utilize the Sloan Museum of Discovery as a community hub and gathering place.
1.0 INTRODUCTION

SLOAN MUSEUM OF DISCOVERY EXPANSION AND RENOVATION

Core Mission Improvements:
- Education work room: located adjacent to the learning labs and the loading dock to prepare for the expanded learning lab classes, growing outreach activities and the supplies needed to support them.
- Collections
  - Storage space access controlled
  - New improved HVAC in all collection areas
  - Sprinkler system installed.
  - Collection department in museum
- New Exhibit Galleries: spaces dedicated to Science, Early Childhood, History, and Vehicles allow visitors to explore the connections between science and history.
- Education Learning Labs: hands-on activity spaces for schools, workshops, camps and other learners that allow deeper dives into concepts presented in exhibit galleries.

Visitor Experience
- Kitchen: caterers directly access kitchen no longer through collection spaces
- Space dedicated to event equipment adjacent to Café

Operational improvements
- Dedicated Custodial supply room and equipment storage spaces
- Functional loading dock
- Exhibit shop and storage expanded to meet new workload

METHODOLOGY

The Sloan Museum of Discovery master plan was accomplished in two interdependent, but connected processes: Architecture and Exhibit Design. The early work of Architecture and Exhibit Design proceeded simultaneously, one informing the other, each supporting and enhancing the other’s ability to produce outstanding visitor experiences.

ARCHITECTURE METHOD

Phase 1: Engagement
Phase 2: Program Verification
Phase 3: Conceptual/Schematic Design
Phase 4: Fundraising
Phase 5: Design Development
Phase 6: Construction Documents
Phase 7: Bidding and Negotiation
Phase 8: Construction Administration
Phase 9: Post Occupancy Evaluation

EXHIBIT MASTER PLANNING

Phase 1: Orientation and Research
Phase 2: Engagement
Phase 3: Interpretive Programming
Phase 4: Conceptual Planning
Phase 5: Exhibit Master Plan

EXHIBIT DESIGN

Phase 6: Exhibit Design Development
Phase 7: Fabrication Documents
Phase 8: Fabricator Bidding/Negotiation
Phase 9: Fabrication Management
Phase 10: Installation, Training and Close-Out
Phase 11: Post Occupancy Evaluation
ARCHITECTURE

1.0 ENGAGEMENT
Through a series of workshops, Engagement produced a deep understanding of project goals and objectives, aspirations and ideas, current and intended audiences, strategic intentions and operational criteria. Exploring the qualities of place and content, the workshops were interactive and fun, focused on discovering mutually supported goals and objectives.

2.0 PROGRAM VERIFICATION
Through engagement, Program Verification reconfirmed the goals and overriding objectives governing primary building design decisions through all phases of the project.

3.0 CONCEPTUAL/SCHEMATIC DESIGN
Based on the Building Program, and in concert with Exhibit Design, the Building Design Team began physical planning and design of the museum and site.

4.0 FUNDRAISING
At the conclusion of Schematic Design, we presented the design to original workshop groups, civic groups, media, funding partners and other stakeholders.

EXHIBIT MASTER PLANNING

1.0 ORIENTATION AND RESEARCH
The Exhibit Design Team reviewed information relative to the design effort by reviewing existing materials pertinent to the planning effort; researching best practices and approaches based on preliminary conversations; preparing and organizing Focus Groups; walking through the existing facility, site and surrounds; and visiting complementary and other regional attractions for cultural context. Through this phase, the exhibit design team gained knowledge of existing exhibits, collections and facilities, and insight into planning thoughts to date. We were introduced to community context.

2.0 ENGAGEMENT
Through a series of workshops, Engagement produced a deep understanding of project goals and objectives, aspirations and ideas, current and intended audiences, strategic intentions and operational criteria. The series of facilitated workshops included: a Board of Directors Workshop, a Sloan*Longway Workshop, and at least four Public Workshops. Engagement will continue through construction and after the new museum opens. (See Appendix for Workshop Summaries)

3.0 INTERPRETIVE PROGRAMMING
At the heart of exhibit development is the process to define the nature of visitor experiences. By sifting through staff, stakeholder and community workshop ideas, examining audience profiles, conducting best practice research, combing regional characteristics, understanding regional curricula, analyzing the collections, site and facility potential, the Interpretive Program emerged as a series of recommended experiences, exhibits, activities, amenities and programs aimed specifically at targeted audiences.

4.0 CONCEPTUAL PLANNING
Based on the Interpretive Program the Exhibit Design Team investigated conceptual exhibit design approaches, incorporated into and helping define architectural plans.

5.0 EXHIBIT MASTER PLAN
The Master Plan incorporates the results of conceptual planning, interpretive programming, community engagement, and conceptual renderings of exhibits and experiences built around those results.
2.1 INTERPRETIVE EXPERIENCES, EXHIBITS + ACTIVITIES

- Learning Labs
- Offices
- Early Childhood Gallery
- Temporary Gallery
- Discovery Hall
- Cafe
- Vehicle City Gallery
- Perry Archives Research Center and Flint Genealogical Society
- History Gallery
- Lobby and Museum Store
Interpretive Experiences, Exhibits + Activities

The Exhibit Master Plan gives conceptual shape to a large number of improvement opportunities, expressed in a series of interpretive narratives and illustrations. By framing the Exhibit Master Plan around a limited number of project components, an otherwise complex series of design initiatives can be more readily understood:

1. **LEARNING LABS**
   Three Learning Labs will allow for the expansion of group programming at the Sloan Museum of Discovery. The Learning Labs will provide opportunities for students to engage in active, project-based learning experiences.

2. **OFFICES**
   Consolidated office suite allows for creative and professional communications.

3. **EARLY CHILDHOOD GALLERY**
   Our youngest visitors will explore, play, and learn in their own kid-sized community. Push carts will provide transportation down Hagerman Street while kids shop for healthy food choices in the Deli and Grocery Store. Kids can prepare their meals, care for family members, and do chores in the house, garden, and garage. They’ll step into the roles of health care providers while driving the life-sized ambulance to the Hurley Children’s Hospital area. The pocket park provides opportunities for physical activity, literacy, and play.

4. **TEMPORARY GALLERY**
   This new space meets height and configuration criteria to accept a broader range of national touring exhibits. Additionally, students will be able to move quickly between the Learning Labs and the exhibits associated with the Traveling Gallery.

5. **DISCOVERY HALL**
   The Discovery Hall brings Earth Science and Physical Science to life through engaging interactive experiences and exhibits. Visitors can explore science topics through a multi-story spaceship earth climbing structure, at the Maker Lab, or by interacting with Water Exhibits.

6. **CAFÉ**
   A new convenient café will seat 210 people, and will better accommodate school field trips, patrons, and area visitors, serving as a community gathering space. In the evenings, the space will host corporate and community events, weddings and parties in a unique museum environment.

7. **VEHICLE CITY GALLERY**
   The Vehicle City Gallery is a 10,000 square foot space that will feature portions of the museum’s vehicle collection as well as future automotive technology. Not limited to automobiles, the gallery will also be an area to display carriages, carts, and other forms of transportation.

8. **PERRY ARCHIVES RESEARCH CENTER AND FLINT GENEALOGICAL SOCIETY**
   The Perry Archives Research Center will allow researchers to utilize the museum’s archival holdings. Similarly, the Flint Genealogical Society will provide access to its collection in an adjacent office.

9. **HISTORY GALLERY**
   Re-imagined and totally redesigned, the History Gallery will show the struggles and successes of Flint and Genesee County, and how we have continued to persevere. The new history exhibits will be interactive and immersive. Through the collection of objects and stories, this gallery seeks to gather the threads of our community’s narrative and bring it to life.

10. **LOBBY AND MUSEUM STORE**
    An inviting lobby and beautiful new store gives for a sense of arrival and welcome for Museum visitors.
2.1 INTERPRETIVE EXPERIENCES, EXHIBITS + ACTIVITIES

1. Collections Offices
2. Collections Storage
3. Artifact Prep Room
4. Exhibit Shop and Spaces
1 COLLECTIONS OFFICES
Offices for the Curator of Collections, Registrar and Collections Manager, and Archives and Research Coordinator will for the first time be housed in the main museum building since its opening in 1966.

2 COLLECTIONS STORAGE
Expanded collections storage areas allow the museum archives to be housed in the Sloan Museum’s lower level along with increased room for artifact storage. All collection spaces will have humidity and temperature control. A clear and well-delineated access system will provide the necessary security for artifacts in storage. All areas will now have fire suppression installed.

3 ARTIFACT PREP ROOM
This dedicated space will provide an area for Collections and Exhibits staff to fabricate mounts for permanent storage and display so that artifacts are properly supported both on view and off, as well as casework and other exhibit components that help to make interesting and dynamic exhibits.

4 EXHIBIT SHOP AND SPACES
Though only slightly larger in square footage, the Exhibit Shop space will now have designated rooms for electronic equipment, printing and graphics allowing for a more efficient workspace. Additional storage will house back-up hands-on components, casework, and travelling exhibit cases and crates so that Exhibits staff can better meet the increased operational needs of the renovated building.
Three Learning Labs will allow for the expansion of group programming at the Sloan Museum of Discovery. While students will be encouraged to explore galleries independently, Learning Lab programming will provide more structured and formal experiences that explore and introduce critical concepts in science, social studies, and math. Language arts concepts will be embedded throughout all program content.

Designed to support Next Generation Science Standards (see 4.1 Curriculum Connections: STEM), STEM-based activities in the Learning Labs will invite students to investigate science phenomenon observed in the Discovery Hall. A large menu of activities will include experiences in earth science, physical science, and life science. Engaging, hands-on activities will allow for students to interact with artifacts and replicas that bring Michigan’s rich history to life. Concepts that support Grade Level Content Expectations (see 4.2 Curriculum Connections: Social Studies) in social studies include history, geography, mapping, economics, and government. These programs will reach schools throughout mid-Michigan and will also serve the Flint Cultural Center Academy.

The Learning Labs will serve as home base for an extensive program of summer learning opportunities for the region’s youth. These day camps and workshops will provide project based activities that make use of exhibit content throughout the museum. Programming for both Girl Scouts and Boy Scouts will include workshops and overnight experiences that help scouts complete badge requirements.

Programmatic content will reach beyond the Learning Labs through an extensive statewide outreach program serving schools, afterschool programs, library systems, and other organized groups. Outreach activities include Family STEM Night events, support for Summer Reading Program themes, daily visits to local afterschool sites, and professional development training that supports other youth serving professionals. Outreach programs also serve a network of partner schools that receive STEM and social studies programming in their classrooms on an ongoing basis.

Education work room: located adjacent to the Learning Labs and the loading dock will act as a hub for the materials and class preparation necessary for over 60,000 students served annually by the programming department.
EARLY CHILDHOOD GALLERY
Our youngest visitors will explore, play, and learn in their own kid-sized community. Push carts will provide transportation down Hagerman Street while kids shop for healthy food choices in the Deli and Grocery Store. Kids can prepare their meals, care for family members, and do chores in the house, garden, and garage. They’ll step into the roles of health care providers while driving the life-sized ambulance to the Hurley Children’s Hospital area. The pocket park provides opportunities for physical activity, literacy, and play.

Working in partnership with local early childhood education experts, this gallery has been designed to support early learning domains in approaches to learning, social and emotional development, language and literacy, cognition, and perceptual, motor, and physical development. As kids play in this vibrant urban neighborhood, they will be experiencing important concepts that support classroom instruction and move kids towards kindergarten readiness. Content in the gallery will be supported by play-based hands on activities that will take place in the museum’s Learning Labs. Student learning will be further supported by an extensive outreach effort that delivers programming to the children’s classroom. The Hagerman Street gallery, along with a robust program of hands-on, curriculum based activities, will solidify Sloan Museum of Discovery’s commitment to the region’s youngest learners, their families, and the early childhood education community.
DISCOVERY HALL
The Discovery Science Hall brings Earth Science and Physical Science to life through engaging interactive experiences and exhibits. The centerpiece of the hall is the multi-story tall spaceship earth climbing structure. This sphere links the earth science and physical science hands-on exhibits spread throughout the entire gallery. Also included in the hall are the Maker’s Lab and Water Exhibits. All of the individual exhibits are linked directly to Next Generation Science Standards and other pertinent state and national educational standards. Visitors to the gallery space will explore science topics through over 40 fully accessible exhibits. School groups will not only interact with exhibits, but also combine free exploration with more formal explorations in the Learning Lab. Students will also have the opportunity to exercise problem solving skills involving these principles in the Maker’s Lab. Groups will in this way explore science through multiple experiences, involving different learning pathways.

**LEGEND:**
1. H2Ohhhh!
2. Maker Lab
3. Physical Science
4. Spaceship Earth Climber
5. Earth Science
DISCOVERY HALL: MAKER LAB
DISCOVERY HALL: MAKER LAB

Make, think, experiment, design, paint, create. Test, fail, and try again!

Visitors to this active space, will encounter different making and tinkering challenges. Participants will be encouraged to explore project-based challenges involving decision making and creating their own solutions. Opportunities for creativity abound, using found objects, materials and tools. Lab facilitators will be your partners in discovery, challenging you to find your own solution.

Student groups using this space will have instructor lead experiences, focusing on critical thinking skills to solve challenges. The activities in this space embed engineering, math and science standards, leading to new ways of learning. Career connections will link challenges with career pathways both in high-tech and skilled trades careers.

LEGEND:

1. Work Stations
2. Demo Station
3. Maker Lab Workbenches
4. Building the Future
5. Paint Room
6. Tool Vault
7. Display Case
DISCOVERY HALL: H2Ohhhh!
DISCOVERY HALL: H2Ohhhh!

Explore water in playful exploration. Visitors will learn about properties of water, states of matter and the water cycle. The area includes two separate water tables, one for our youngest visitors and one for older students and adults. By playing and experimenting with water, students will learn how water can be transported by pipes or devices like an Archimedes screw and contained with dams and levees.

The gallery space will explore water in all its forms and interactions. Highlights include a detailed interactive water cycle exhibit, how water melting from the polar caps may affect ocean levels and climate, laminar flow, and many more ways to interact with water. A scientific discussion of the water crisis along with its social impact will be presented with more information in the history galleries.

LEGEND:
1. Municipal Works
2. Raindrop Station
3. Waterfall
4. Physics of Water
5. Wee Droplet
6. Blowers
Reimagined and totally redesigned History Galleries will show our struggles and successes, and how we have persevered. We will examine the people who have made up Genesee County throughout its history. Input from those communities, by way of objects and stories, is integral to ensure a more equitable representation of Genesee County’s diverse population.
HISTORY GALLERY: CARRIAGE TO CARS
At left is the museum’s main history gallery, which is a 10,687 square foot space dedicated to the story of Flint and Genesee County. Community involvement is central to the exhibition development process, with input and inclusion sought from groups throughout the area. The gallery will not be arranged as a chronological timeline. Rather, visitors can enter from any point in the space to encounter three sections:

- **LANDSCAPE**: this section examines the land, natural resources, neighborhoods, and buildings of Flint and Genesee County. How do people, both past and present, interact with, change, utilize, and adapt to the natural and artificial resources that the landscape provides? The natural landscape was the base upon which Flint was built, with resources like the Flint River making early trade possible and encouraging the creation of 20th century enterprises such as the automotive industry. As more people came to the area, the county, its neighborhoods, and its infrastructure grew around the natural landscape. However, as time has passed and technology has progressed, the area has become less beholden to it. From the development of flood protection measures and booming downtowns, to the Flint Water Crisis and housing discrimination, both positive and negative changes have come to the landscape as a result of Flint and Genesee County’s growth.

- **INDUSTRY**: Industry is responsible for taking Flint from a small town to a booming city to an economy ready to be recharged, and the ventures that the people engaged in—first logging, then carriage making and automobile manufacturing—changed the landscape and the culture of this area. The emergence of each was largely possible due to the growth and infrastructure generated by the previous endeavor. Along with Flint’s success came serious progress for the rights of workers, as unions lobbied for better working conditions and pay. However, a declining automotive industry left only a fraction of its resources here, compelling Flint and Genesee County to adapt and reinvent. This gallery seeks to celebrate the achievements of the workers who helped to put America on wheels, to examine other industries that arose before, simultaneous to, and after vehicle manufacturing, and to consider the future of this community’s economy. Certainly the barons, executives, and elites whose names are now well-known—Crapo, Durant, Dort, Buick—played a substantial role in shaping local industry. But, it is just as essential to pay tribute to the toil of the often unnamed, but entirely vital, men and women who made their contributions in the farms and sawmills, the assembly lines and plants, and in the schools, hospitals, civic buildings, and shops, and who helped form the unique character of Flint and its surrounding communities.

- **CULTURE**: With much of the area’s history linked to labor and industry, it is just as important to identify and celebrate the other aspects of life that emerged to support an expanding population in Genesee County. Whether developed out of necessity, or strictly served to entertain, the cultural spaces and activities here—houses of worship, music, the arts, athletics, commerce, and education—have been and continue to be notable. From the shuttering of beloved businesses to redevelopment of the city’s downtown, to the faith community’s response to the Water Crisis, to the growth and closure of community schools, Flint’s story is one of change and adaptation, sometimes for good, sometimes for bad. Nevertheless, many people stay. Some have few options to leave; others believe just as the city’s Mayor, Dr. Karen Weaver, that, “Flint is…poised and ready for transformation; a city committed to reinventing itself by building upon its rich history, strong character, resilience, and enduring work ethic.” This portion of the history gallery seeks, then, to celebrate what this city and its surrounding communities have built and made, often in the face of adversity, with the goal ultimately of shifting the narrative away from one of misfortune and toward one of a shared hope for Flint’s reinvention.

Essential to compelling exhibits is a well-managed collection. With more advanced HVAC systems, the addition of sprinklers, and expanded and upgraded storage for Collections, the renovation of the Sloan Museum allows staff to improve its stewardship of artifacts both on display and off. Likewise, we plan to rotate more sensitive artifacts off display to ensure that those fragile or rare materials are preserved for future study and enjoyment.
WIGWAM

American Indians were the first people to live in what is now Michigan. They altered and used the natural environment to feed, clothe, and shelter themselves, affecting the ecology of the area. Europeans were drawn here by the prospect of engaging in the fur trade with American Indians. This relationship and the stories of the original people of the Great Lakes region will be presented through an immersive gallery that will provide an enriched educational experience.

Visitors will have the opportunity to step inside a modified Wigwam structure inspired by the shelters used historically by the tribes native to mid-Michigan. The large, round shelter will consist of arched wooden poles covered in a bark roof, which served to protect dwellers from harsh weather, as well as a simulated earthen floor. The interior of the wigwam will feature items like the decorated mats and vessels that would have been of use to those who lived inside.

Open to all museum visitors, the Wigwam display will be especially utilized to teach interactive programs to school groups. These fully immersive programs allow students to learn about traditional stories, beliefs, culture, and the way of life of American Indians. With artifacts and replicas of items American Indians used to hunt, cook and build, students understand how their surroundings played an important role in their lives.

The gallery space surrounding the Wigwam will showcase additional artifacts, along with graphics and photographs, to help tell the story of the Ojibway (Chippewa), Odawa (Ottawa), and Odawatomi (Potawatomi) tribes—collectively known as the Anishinabeg. Through a developing relationship with tribes in the region, we will provide a space in which Native peoples’ stories, historical and current, can be shared.
VEHICLE CITY GALLERY

This new gallery space replaces the off-site Buick Gallery with a name that more accurately reflects Flint’s historical moniker as the Vehicle City, a name it earned for production of both carriages and automobiles. The new Vehicle City Gallery is a 10,000 square foot space that will be used to display carriages, carts, and other forms of transportation. Rather than being exhibited simply for aesthetic purposes, the vehicles will be used to tell stories related to local and national history, making them more relevant to visitors with varying interests. The artifacts on display will be rotated, with exhibits changing on a cyclical basis. The gallery will not be limited to historical vehicles, but also feature dedicated areas that showcase future vehicle technology, tying the gallery to the Discovery Hall.

The gallery is the connecting point between the Sloan Museum of Discovery and the Flint Cultural Center Academy and is found in the northwest corner of the building. The space will feature a turntable in the center of the room that can serve as a focal point for specific vehicles when desired. The floorplan will be open and with few obstructions, allowing for easier placement of exhibit components and barriers as displays change out.

When the museum opened in 1966 it was known as the Panorama of Transportation. While the scope of the museum’s collection extends beyond it, transportation is a major focus. The current vehicle gallery is offsite, and it suffers from a lack of visibility that is at odds with the significance of the artifacts displayed there. The construction of a dedicated gallery space within the main museum building highlights the prominence of these artifacts in our collection and will greatly increase their accessibility.
2.5 HISTORY: PERRY ARCHIVES RESEARCH CENTER, FLINT GENEALOGICAL SOCIETY, AND COMMUNITY GALLERY

1. THE PERRY ARCHIVES RESEARCH CENTER
The Perry Archives Research Center will allow researchers to access items from the museum’s archival holdings for both academic and personal study. This collection includes photographs and clippings from The Flint Journal, literature and records from General Motors, the Gustin papers, private manuscripts, government, and business papers just to name a few. Currently housed offsite, the visibility and use of the archive is anticipated to increase greatly once it is integrated into the museum proper; so too will staff’s ability to provide these services.

2. FLINT GENEALOGICAL SOCIETY
The office of the Flint Genealogical Society will provide access to its collection for researchers, much like the Perry Archives. Though independent of the Sloan Museum of Discovery, the Society has been a partner for over 35 years, with the museum providing secure collection storage and meeting space for the organization.

3. COMMUNITY GALLERY
The Community Gallery is a 1,112 square foot space intended for rotating in-house exhibits that offer a more in-depth look at select topics of interest using objects from the collection and input from community groups.
For many years, the Sloan Museum has provided the community with opportunities to visit nationally touring and in-house exhibits. However, it has struggled with a temporary gallery that, due to its limitations restricted the number of exhibits that could be shown. When Learning Lab experiences were associated with these exhibits, the distance between the Temporary gallery caused delays, limiting the time classes had within the exhibit. The new Temporary Gallery with its taller ceilings and adjacent Learning Lab provides for a broader range of exhibits and improves programming opportunities. The new circulation corridor allows for minimal disruption of visitors and classes as exhibits are installed and removed.
2.7 CAFÉ

1. CAFÉ
A new convenient Café will seat 210 people, this space will serve as a center for the community to gather, eat, and express their ideas. During lunch time it will accommodate three times the number of school groups and patrons than the current Café. Café visitors can relax and refuel before, during, or after they visit our galleries. Visitors can also take advantage of our free Wi-Fi while sipping on a selection from our espresso or tea menu. In the evenings, the cafe is an ideal setting for community lectures and special events. Visitors to the museum may schedule personal events in the Café area such as birthday parties, wedding receptions, or retirement events with presentations, music, or amplified sound.

2. WARMING KITCHEN
The warming kitchen provides a seasonal menu of American-inspired dishes, using local, organic or sustainable ingredients when possible and includes family friendly options such as pizza, Panini sandwiches, salads and other grab and go food. Prearranged boxed lunches for small groups can be made to order. Coffee, espresso, tea, soda and other beverages will be available as well. During catered events, the kitchen will provide caterers a space to locate hot carts and prepare plates for service.

3. VOLUNTEER ROOM
A new volunteer room will provide a space for our devoted volunteers to hang their hats as they help us in our galleries, shops, and offices, helping to make enjoyable experiences for our visitors. In addition, it will serve as a place for volunteer training and house a dedicated Volunteer Coordinator.
OFFICES
A new, centrally located office suite allows staff to communicate, plan, and work in a comfortable setting. A new boardroom accommodates meetings of up to 20 individuals for large gatherings.

CUSTODIAL STORAGE AND SERVICE ROOMS
Spaces are intentionally located to have equipment near the areas it will be used. From custodial storage to the specialty equipment needed to clean the water table area and the kitchen.

LOADING DOCK
The new loading dock will allow access to the main floor of the building, not only to accommodate traveling exhibits but vehicles that will use the dock daily to move outreach kits and equipment in and out of the building.

INFORMATION TECHNOLOGY
A dedicated server room and IT closets located throughout the facility and connected by fiber optic cabling will allow future upgrades to offices, exhibits, and other public areas.

YOUNG CHILD CLEANING ROOM
A room dedicated to keeping the young child area cleaned and in service as well as to allow staff on the floor to quickly remove dirty items on the floor and bring out clean props.

RENTAL STORAGE
A space dedicated to tables, chairs, and other equipment necessary for events is located directly adjacent to the Café.
### 4.1 CURRICULUM CONNECTIONS: STEM

#### Forces and Interactions: Pushes and Pulls

<table>
<thead>
<tr>
<th>Grade</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kindergarten</td>
<td>- Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.</td>
</tr>
<tr>
<td></td>
<td>- Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.</td>
</tr>
</tbody>
</table>

#### Forces and Interactions

<table>
<thead>
<tr>
<th>Grade</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>3rd Grade</td>
<td>- Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</td>
</tr>
<tr>
<td></td>
<td>- Make observations and/or measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion.</td>
</tr>
<tr>
<td></td>
<td>- Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.</td>
</tr>
<tr>
<td></td>
<td>- Define a simple design problem that can be solved by applying scientific ideas about magnets.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-8th Grade</td>
<td>- Apply Newton’s Third Law to design a solution to a problem involving the motion of two colliding objects.</td>
</tr>
<tr>
<td></td>
<td>- Plan an investigation to provide evidence that the change in an object’s motion depends on the sum of the forces on the object and the mass of the object.</td>
</tr>
<tr>
<td></td>
<td>- Ask questions about data to determine the factors that affect the strength of electric and magnetic forces.</td>
</tr>
<tr>
<td></td>
<td>- Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects.</td>
</tr>
<tr>
<td></td>
<td>- Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact.</td>
</tr>
</tbody>
</table>

#### Energy

<table>
<thead>
<tr>
<th>Grade</th>
<th>Activity</th>
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<tbody>
<tr>
<td>4th Grade</td>
<td>- Use evidence to construct an explanation relating the speed of an object to the energy of that object.</td>
</tr>
<tr>
<td></td>
<td>- Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.</td>
</tr>
<tr>
<td></td>
<td>- Ask questions and predict outcomes about the changes in energy that occur when objects collide.</td>
</tr>
<tr>
<td></td>
<td>- Apply scientific ideas to design, test, and refine a device that converts energy from one form to another. *</td>
</tr>
<tr>
<td>6-8th Grade</td>
<td>- Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Grade</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-8th Grade</td>
<td>- Construct and interpret graphical displays of data to describe the relationships of kinetic energy to the mass of an object and to the speed of an object.</td>
</tr>
<tr>
<td></td>
<td>- Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.</td>
</tr>
<tr>
<td></td>
<td>- Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.</td>
</tr>
<tr>
<td></td>
<td>- Plan an investigation to determine the relationships among the energy transferred, the type of matter, the mass, and the change in the average kinetic energy of the particles as measured by the temperature of the sample.</td>
</tr>
<tr>
<td></td>
<td>- Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.</td>
</tr>
</tbody>
</table>

**Energy: Chemical Reactions**

<table>
<thead>
<tr>
<th>Grade</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>6-8th Grade</td>
<td>- Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred.</td>
</tr>
<tr>
<td></td>
<td>- Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.</td>
</tr>
<tr>
<td></td>
<td>- Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.</td>
</tr>
</tbody>
</table>
Engineering Design

Kindergarten
1st Grade
2nd Grade
- Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.
- Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.
- Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.

3rd Grade
5th Grade
4th Grade
- Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
- Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
- Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

6-8th Grade
- Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions.
- Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem.
- Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.
- Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.

Waves:

Light and Sound
1st Grade
- Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.
- Make observations to construct an evidence-based account that objects can be seen only when illuminated.
- Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.
- Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.

Light Waves: Structure, Function, and Information Processing
- Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.

Waves and Information
4th Grade
- Develop a model to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.
- Generate and compare multiple solutions that use patterns to transfer information.

Waves and Electromagnetic Radiation
6-8th Grade
- Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.
- Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.
- Integrate qualitative scientific and technical information to support the claim that digitized signals are a more reliable way to encode and transmit information than analog signals.
### 4.1 CURRICULUM CONNECTIONS: STEM

#### Structure and Properties of Matter
- Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
- Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.
- Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.
- Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.

**5th Grade**
- Develop a model to describe that matter is made of particles too small to be seen.
- Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.
- Make observations and measurements to identify materials based on their properties.
- Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

**6-8th Grade**
- Develop models to describe the atomic composition of simple molecules and extended structures.
- Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.
- Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.

#### Weather and Climate
- **Kindergarten**
  - Make observations to determine the effect of sunlight on Earth’s surface.
  - Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.
- **3rd Grade**
  - Use and share observations of local weather conditions to describe patterns over time.
  - Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather.
- **6-8th Grade**
  - Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.
  - Obtain and combine information to describe climates in different regions of the world.
  - Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.
  - Collect data to provide evidence for how the motions and complex interactions of air masses results in changes in weather conditions in Michigan due to the Great Lakes and regional geography.
  - Develop and use a model to describe how unequal heating and rotation of the Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.
  - Ask questions to clarify evidence of the factors that have caused the rise in global temperatures over the past century.
### Earth’s Systems: Processes that Shape the Earth

#### 2nd Grade
- Use information from several sources to provide evidence that Earth events can occur quickly or slowly.
- Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.
- Develop a model to represent the shapes and kinds of land and bodies of water in an area.
- Develop a model to represent the state of Michigan and the Great Lakes, or a more local land area and water body.
- Obtain information to identify where water is found on Earth and that it can be solid or liquid.
- Obtain information to identify where fresh water is found on Earth, including the Great Lakes and Great Lakes Basin.

#### 4th Grade
- Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.
- Identify evidence from patterns in rock formations and fossils in rock layers to support possible explanations of Michigan’s geological changes over time.
- Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.
- Analyze and interpret data from maps to describe patterns of Earth’s features.
- Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans.
- Generate and compare multiple solutions to reduce the impacts of natural Earth processes on Michigan’s people and places.
- Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
- Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact in Michigan and the Great Lakes basin.
- Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.

#### 5th Grade
- Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.
- Describe and graph the amounts and percentages of water and fresh water in the Great Lakes to provide evidence about the distribution of water on Earth.
- Obtain and combine information about ways individual communities use science ideas to protect the Earth’s resources and environment.

#### 6-8th Grade
- Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth’s 4.6-billion-year-old history.
- Construct an explanation based on evidence for how geoscience processes have changed Earth’s surface at varying time and spatial scales.
- Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.
- Develop a model to describe the cycling of Earth’s materials and the flow of energy that drives this process.
- Develop a model to describe the cycling of water through Earth’s systems driven by energy from the sun and the force of gravity.
- Construct a scientific explanation based on evidence for how the uneven distributions of Earth’s mineral, energy, and groundwater resources are the result of past and current geoscience processes.
- Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.
- Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.
- Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth’s systems.
4.1 CURRICULUM CONNECTIONS: STEM

**Space Systems: Stars and the Solar System**

- Use observations of the sun, moon, and stars to describe patterns that can be predicted.
- Make observations at different times of year to relate the amount of daylight to the time of year.

- Support an argument that the gravitational force exerted by Earth on objects is directed down.
- Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.
- Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.

**6-8th Grade**

- Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons.
- Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
- Analyze and interpret data to determine scale properties of objects in the solar system.
History:

1st - 4th Grades

Use historical thinking to understand the past

☐ Demonstrate chronological thinking by distinguishing among years and decades using a timeline of local community events.

☐ Use historical sources to draw possible conclusions about family or school life in the past. Photos, diaries, oral histories, videos

☐ Explain how individuals and groups have made a significant historical change.

☐ Compare life today with life in the past using the criteria of family, school, jobs, or communication.

☐ Describe changes in the local community over time. Types of businesses, architecture and landscape, jobs, transportation, population.

☐ Describe how community members responded to a problem in the past.

☐ Construct a historical narrative about the history of the local community from a variety of sources. Data gathered from local residents, artifacts, photographs

☐ Identify questions historians ask in examining the past in Michigan. What happened? When did it happen? Who was involved? How and why did it happen?

☐ Use historical inquiry questions to investigate the development of Michigan’s major economic activities from statehood to present. Agriculture, mining, manufacturing, lumbering, tourism, technology, and research. Where is it? What is it like there? How is it connected to other places?

☐ Explain how historians use primary and secondary sources to answer questions about the past.

☐ Use primary and secondary sources to explain how migration and immigration affected and continue to affect the growth of Michigan.

☐ Describe the causal relationships among three events in Michigan’s past. Erie Canal, more people came, statehood

☐ Draw upon traditional stories and/or teachings of indigenous peoples who lived in Michigan in order to make generalizations about their beliefs and histories. Anishinabeg – Ojibway (Chippewa), Odawa (Ottawa), Potawatomi, Menominee, Huron.

☐ Describe how the relationship between the location of natural resources and the location of industries (after 1837) affected and continues to affect the location and growth of Michigan cities.

1st - 4th Grades continued

☐ Use informational text and visual data to compare how indigenous people and non-indigenous people in the early history of Michigan adapted to, used, and modified their environment.

☐ Use visual data and information text or primary accounts to compare a major Michigan economic activity today with that same or a related activity in the past.

☐ Use a variety of sources to describe interactions that occurred between indigenous peoples and the first European explorers and settlers in Michigan.

☐ Use a variety of primary and secondary sources to construct a historical narrative about the beginnings of the automobile industry and the labor movement in Michigan.

☐ Use a variety of primary and secondary sources to construct a historical narrative about daily life in the early settlements of Michigan (pre-statehood).

☐ Describe past and current threats to Michigan’s natural resources; describe how Michigan worked in the past and continues to work today to protect its natural resources.

☐ Use case studies or stories to describe how the ideas or actions of individuals affected the history of Michigan.

5th Grade

Describe the life of peoples living in North America before European exploration

☐ Use maps to locate peoples in the Eastern Woodland (the Woodland Peoples east of the Mississippi River), desert Southwest, the Pacific Northwest, and the nomadic nations of the Great Plains.

☐ Compare how indigenous peoples in the Eastern Woodlands and another tribal region adapted to or modified the environment.

☐ Describe Eastern Woodland life with respect to governmental and family structures, trade, and views on property ownership and land use location and growth of Michigan cities.
4.2 CURRICULUM CONNECTIONS: SOCIAL STUDIES

**History:**
- 7th Grade
  - Explain how historians use a variety of sources to explore the past.
  - Read and comprehend a historical passage to identify basic factual knowledge and the literal meaning by indicating who was involved, what happened, where it happened, what events led to the development, and what consequences or outcome followed.
  - Identify the point of view and context when reading and discussing primary and secondary sources.
  - Describe how historians use methods of inquiry to identify cause/effect relationships in history, noting that many have multiple causes.

**Geography:**
- 3rd - 4th Grades
  - Use geographic representation to acquire, process, and report information from a spatial perspective
  - Use cardinal direction (north, south, east, and west), scale, and key or legend to describe the relative location and characteristics of major places in the immediate environment.
  - Identify questions geographers ask in examining the United States.
  - Use thematic maps to identify and describe the physical and human characteristics of Michigan.

- 1st - 4th Grades
  - Understand how human activates help shape the Earth's surface
  - Use components of culture to describe diversity in family life. Foods, language, religion, traditions.
  - Describe land use in the community. Where people live, where services are provided, where products are made.
  - Describe major kinds of economic activity in Michigan today, such as agriculture, forestry, manufacturing, services, and tourism, and research and development, and explain the factors influencing the location of these economic activities. Primary industries located by natural resources, manufacturing influenced by resources, labor, markets, and capital, services often located close to markets.
  - Use a case study or story about migration with or to the United States to identify push and pull factors (why they left, why they came) that influenced the migration.
  - Describe the means people create for moving people, goods, and ideas with the local community.
  - Describe diverse groups that have come into a region of Michigan and reasons why they came (push/pull factors)
  - Describe the impact of immigration to the United States on the cultural development of different places or regions of the United States.
  - Use components of culture to describe diversity in the local community. Foods, language, religion, traditions.
Geography:

1st, 2nd, 3rd, 4th Grades continued

- Describe some of the movements of resources, goods, people, jobs, and information to, from, or within the United States, and explain the reasons for the movements. Movement of fossil fuels, clothing, retirees and refugees, manufacturing jobs, and the news into and within the USA.
- Use data and current information about the Anishinabeg and other indigenous peoples living in Michigan today to describe the cultural aspects of modern indigenous people’s life; give an example of how another cultural group in Michigan today has preserved and built upon its cultural heritage.
- Understand the effects of human-environment interactions
  - Describe ways in which people are part of, modify, and adapt to their physical environment. Modify – cutting down trees, building roads Adapt – clothing, housing, transportation
  - Suggest ways people can responsibly interact with the environment in the local community
  - Locate natural resources in Michigan and explain the consequences of their use.
  - Assess the causes and positive and negative consequences of human activities in different parts of the country.
  - Describe ways in which the physical environment in a place or region affects people’s lives.
  - Describe positive and negative consequences of changing the physical environment of the local community.
  - Describe how people are part of, adapt to, use, and modify the physical environment of Michigan.

Places and Regions

Describe the cultural groups and diversities among people that are rooted in particular places and in human constructs called regions. Analyze the physical and human characteristics of places and regions.

6th Grade

- Describe the human characteristics of places
  - Describe the human characteristics of a region under study, including languages, religions, economic system, governmental system, cultural traditions.
  - Explain how communities are affected positively or negatively by changes in technology.
  - Explain how culture and experience influence people’s perception of places and regions.

Human Systems

Explain that human activities may be seen on Earth’s surface. Human systems include the way people divide that land, decide where to live, develop communities that are part of the larger cultural mosaic, and engage in the cultural diffusion of ideas and products within and among groups.

6th Grade

- Describe the characteristics, distribution and complexity of Earth’s cultural mosaic
  - Define culture and describe examples of cultural change through diffusion, including what has diffused, why and where it has spread, and consequences.
  - Compare the roles of men and women in different societies.
  - Describe cultures of the region being studied including the major languages and religions.
  - Explain how cultural patterns influence environments and the daily lives of people.

- Describe patterns, processes, and functions of human settlement
  - Explain how people have modified the environment and used technology to make places more suitable for humans.
  - Describe patterns of settlement and explain why people settle where they do and how they make their living.
  - Explain the patterns, causes, and consequences of major human migration.
4.2 CURRICULUM CONNECTIONS: SOCIAL STUDIES

**Civics and Government:**

1st - 3rd Grades
- Explain why people create government
- Explain the need for, and purposes of, rules.
- Give examples of the use of power with authority and power without authority in school. Power with authority – principal, teacher, or bus driver. Power without authority – types of bullying, taking cuts in line.
- Explain why people form governments.
- Give an example of how Michigan state government fulfills one of the purposes of government. Protecting individual rights, promoting the common good, ensuring equal treatment under the law.

3rd Grade
- Describe the structure of government in the United States and how it functions to serve citizens
- Distinguish between the roles of state and local government.
- Explain how state courts function to resolve conflict.

2nd - 4th Grades
- Explain important rights and how, when and where American citizens demonstrate their responsibilities by participating in a constitutional republic
- Identify ways citizens participate in community decisions.
- Distinguish between personal and civic responsibilities and explain why they are important in community life.
- Identify and explain the rights and responsibilities of citizenship.
- Rights – freedom of speech, freedom of religion, right to own property. Responsibilities – respecting the rights of others, voting, obeying others.
- Explain responsibilities of citizenship. Initiating change in laws or policy, holding public office, respecting the law, being informed and attentive to public issues, paying taxes, registering to vote and voting knowledgeably, serving as a juror.
- Describe the ways citizens can work together to promote the core values and constitutional principles of American democracy, a constitutional republic.

**Economics:**

1st - 4th Grades
- Use fundamental principles and concepts of economics to understand economic activity in a market economy
- Distinguish between producers and consumers of goods and services.
- Identify the opportunity cost involved in a consumer decision.
- Using a Michigan example, explain how scarcity, choice, and opportunity cost affect what is produced and consumed.
- Identify a good or service made in the United States and answer the three economic questions all economies must address. What goods and services will be produced? How will these goods and services be produced? Who will consume the goods and services?
- Describe how businesses in the local community meet economic wants of consumers
- Analyze how Michigan’s location and natural resources influenced its economic development. How waterways and other natural resources have influenced economic activities such as mining, lumbering, automobile manufacturing, and furniture making.
- Describe how positive and negative incentives influence behavior in a market economy. Positive – responding to a sale, saving money, earning money. Negative – library fines 3-1E1.0.4 - Describe how entrepreneurs combine natural, human, and capital resources to produce goods and services in Michigan.
- Describe reasons why people voluntarily trade.
- Use examples to show that people cannot produce everything they want (specialization) and depend on trade with others to meet their wants (interdependence).
- Describe ways in which people earn money. Providing goods and services to others, jobs.
- Explain the role of business development in Michigan’s economic future.
- Explain how specialization and division of labor increases productivity. Assembly line.
- Explain how competition among buyers result in higher prices and competition among sellers results in lower prices. Supply and demand.
**Economics:**

**4th Grade**

Use fundamental principles and concepts of economics to understand economic activity in the United States

- Explain how changes in the United States economy impact levels of employment and unemployment. Changing demand for natural resources, changes in technology, and changes in competition.

**3rd - 4th Grades**

Use fundamental principles and concepts of economics to understand economic activity in the global economy

- Identify products produced in other countries and consumed by people in Michigan.
- Identify advantages and disadvantages of global competition.

**Public Discourse, Decision Making, and Citizen Involvement:**

**2nd - 4th Grades**

Communicate a reasoned position on a public issue

- Give examples of how conflicts over core values lead people to differ on resolutions to a public policy issue in Michigan. Equality, Rule of Law, limited government, Social Compact Theory, popular sovereignty, and the right of the people to alter or abolish an oppressive government.

- Give examples of how conflicts over core values lead people to differ on resolutions to a public policy issue in Michigan. Equality, Rule of Law, limited government, Social Compact Theory, popular sovereignty, and the right of the people to alter or abolish an oppressive government.

**5th Grade**

Clearly state a problem as public policy issue, analyze various perspective, and generate and evaluate possible alternative resolutions

- Identify contemporary public issues related to the United States Constitution and their related factual, definitional and ethical questions.
The designed environment at SMOD provides the inspiration, motivation, framework, and materials for learning. A sense of joyful fun coupled with an overlay of real learning are present throughout the visitor's experience, conveying the pleasure of hands-on exploration, investigation, and discovery.

Because the museum serves a broad range of ages, interests and abilities, exhibit elements are designed to appeal to both older and younger visitors; in some cases there are parallel exhibit experiences to meet the very different needs of, for example, a toddler and an 8 year old. Open-ended experiences that prompt new ways of connecting ideas will help visitors of all ages participate in a world where cross-discipline collaboration and innovation are absolutely essential to meeting the challenges of the 21st century.

To aid in this learning process, information and prompts throughout the space will empower older visitors to help younger visitors build knowledge and participate in the inter-generational exchanges critical to learning within an informal, highly social setting. The combination of open-ended experience, information, and conversation, along with staff-led programming and facilitated “making” opportunities, will create a complete circle from the exploration of basic principles to their application through experimentation and invention.

We want to engage visitors of all ages in a dynamic, rich, integrated learning environment filled with clustered experiences that make all of SMOD’s exhibit content and programming relevant, connected, exciting, inclusive and accessible to visitors of all ages.
New exhibit spaces give our community new opportunities to learn through play and action. Allowing families to experience science concepts that until now were only enjoyed by visiting students in classroom spaces or touring exhibits were in our galleries.

THANK YOU
**APPENDIX: COMMUNITY ENGAGEMENT SUMMARIES**

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**Meeting Date:** February 15, 2017  
**Meeting Location:** Sloan Museum  
**Meeting Date:** February 15, 2017, 11:00 am  
**Participants:**

**Discussion Notes:**

Reb opened the meeting by describing the Project and the Sloan Museum's anticipated transformation into a discovery museum. She then asked the participants to introduce themselves, tell us whether or not they are from Flint, and to describe a powerful memory of Flint.

1. **Bishop Bernadel L. Jefferson:** Featured in Women of a New Tribe; Has seen a lot of change due to civil rights. He saw the need for change and became involved in the community. He felt like he learned a lot from being part of the community. A powerful memory is the sit-ins he participated in.

2. **Bettye Hendricks:** Came to Flint in '63 as a junior in high school; no buses so she would walk 20 min to school; she has run a radio program for the last 10 years. She commented that she would listen to the Sloan Museum because it is a place where you go in and right back out and is not a place where she would think of to bring people from out of town; it does not have an attraction to keep people coming back; she took her daughter to President Obama's inauguration and cried, she then took her to and to African American Museum in Boston to help explain why she cried.

3. **Jenni Dones:** Father was from Flint; she spoke about the importance of continuing to show up for events. She commented that in her community, people feel excited about being able to experience part of their history in their community. A powerful memory is the sit-ins she participated in.

4. **Dr. Traci Currie:** Moved to Flint in 2004 from Ohio; currently works at Juvenile Detention Center and is a teacher; from an immigrant Jamaican family; very interested in spoken word. She commented she would listen if it represented the community.

5. **Rasha Mohamed:** Grew up outside of Flint in Muslim community; she felt like she learned a lot listening to others today and it reinforced importance of hearing stories of the past; she attended a Muslim school and felt she did not fit in with the Arabic people because she is black. She commented that she would listen if it represented the community.

6. **John Rhymes:** Works with youth in the community to teach speaking skills, character building, and performance arts, Amistad Academy (see Additional Resources). He then asked the participants to introduce themselves, tell us whether or not they are from Flint, and to describe a powerful memory of Flint.

7. **Jennie Sanders:** Her grandfather who was a homesteader in the summers – he considered this a “3rd space”; a 3rd space is a community that inclusive when people can come together; her father moved to Flint from the South, he didn’t think there would be racism and she was surprised to find there was; gave example of black people being restricted from moving up at GM; recalled the summer sports programs and sports festivals offered at the schools; school offered gymnastics program and she was on the only team that welcomed black people – she loved gymnastics but when the program ended she had to go to another group that wasn’t welcoming to black people and she was forced to quit; learned public speaking skills through church; commented she learned a lot from growing up.

8. **Todd Womack:** His great-great-grandfather was a slave owner in MS; he would visit his grandfather who was a homeside in the summers – he considered this a “3rd space”; a 3rd space is a community that inclusive when people can come together; his father worked at GM and was an avid bowler – the bowling alley was another 3rd space for him – so was the Flint Institute of Art where she would think of to bring people from out of town; it does not have an attraction to keep people coming back; she took her daughter to President Obama’s inauguration and cried, she then took her to and to African American Museum in Boston to help explain why she cried.

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**APPENDIX: COMMUNITY ENGAGEMENT SUMMARIES**

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**Meeting Date:** February 15, 2017  
**Meeting Location:** Sloan Museum  
**Meeting Date:** February 15, 2017, 11:00 am  
**Participants:**

**Discussion Notes:**

Reb opened the meeting by describing the Project and the Sloan Museum's anticipated transformation into a discovery museum. She then asked the participants to introduce themselves, tell us whether or not they are from Flint, and to describe a powerful memory of Flint.

1. **Bishop Bernadel L. Jefferson:** Featured in Women of a New Tribe; Has seen a lot of change due to civil rights. He saw the need for change and became involved in the community. He felt like he learned a lot from being part of the community. A powerful memory is the sit-ins he participated in.

2. **Bettye Hendricks:** Came to Flint in '63 as a junior in high school; no buses so she would walk 20 min to school; she has run a radio program for the last 10 years. She commented that she would listen to the Sloan Museum because it is a place where you go in and right back out and is not a place where she would think of to bring people from out of town; it does not have an attraction to keep people coming back; she took her daughter to President Obama's inauguration and cried, she then took her to and to African American Museum in Boston to help explain why she cried.

3. **Jenni Dones:** Father was from Flint; she spoke about the importance of continuing to show up for events. She commented that in her community, people feel excited about being able to experience part of their history in their community. A powerful memory is the sit-ins she participated in.

4. **Dr. Traci Currie:** Moved to Flint in 2004 from Ohio; currently works at Juvenile Detention Center and is a teacher; from an immigrant Jamaican family; very interested in spoken word. She commented she would listen if it represented the community.

5. **Rasha Mohamed:** Grew up outside of Flint in Muslim community; she felt like she learned a lot listening to others today and it reinforced importance of hearing stories of the past; she attended a Muslim school and felt she did not fit in with the Arabic people because she is black. She commented that she would listen if it represented the community.

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**APPENDIX: COMMUNITY ENGAGEMENT SUMMARIES**
barber shop; he feels the Sloan should be a place that doesn't just have artifacts but is living and active and interactive; oral story telling is important and more engaging.

**HS Takeaways / Items for further discussion / Outcomes:**

1. New Sloan museum needs to incorporate the African American and Black experience in Flint and Genesee County in order to embrace the community; highlight stories should be featured prominently.
2. There is still a great deal of pain in the community.
3. Stories told should be unvarnished; both about moments throughout history and now.
4. Sports is extremely important to the community; brings a sense of pride and is a community builder; consider “Science of Sports” exhibit; highlight stories of Flint / Genesee County athletes.

The preceding is assumed to be a complete and correct account of the items discussed, directions given, and conclusions drawn, unless this office is notified to the contrary. If no notification is received, these minutes will be deemed an accurate account of the meeting.

Notes prepared by: Mary Haizlip

**Additional Resources:**

- Berston Field House


- Flint Expatriates, A blog for the long-lost residents of the Vehicle City, by Gordon Young

- Women of a New Tribe – exhibit at FIA
  - Features 50 African American women who are
  - [http://www.flintarts.org/exhibits/upcoming/womenofanewtribe.html](http://www.flintarts.org/exhibits/upcoming/womenofanewtribe.html)

- Story Corps at Flint Public Library
  - Recordings of personal stories

- John Rhymes
  - Congressional record honoring John Rhymes

- Charlotte Williams

- Bronze Pillars – book
  - [Sloan Museum leant to Haizlip Studio]
APPENDIX: COMMUNITY ENGAGEMENT SUMMARIES
### Discussion Notes:

1. Reb opened the meeting by describing the Project and the Sloan Museum’s anticipated transformation into a discovery museum. He then asked the kids what they liked to do:

   - **Amaria:** likes to make sculptures; likes art projects
   - **Destiny:** likes to cook; art
   - **Larry:** playing with little army soldiers
   - **Manuel:** baseball; cars (Manuel was very bright and enjoyed telling the group about all of the facts he knows about numerous topics); he practices African drumming
   - **Cameron:** wrestling and football
   - **Sasha:** toys, stuffed animals, computers and electronics
   - **Ms. Alana:** scrapbooking; designs cards and paper and teaches this to the kids; they make origami

2. We asked the kids what they would like to see in the new museum:

   - **Sasha:** a mine to see artifacts; she also remarked that in school they are learning about Black History month and said she thought they should be learning about new black history people; not the “old people” – but the new people who are making history now; they need to know about more people
   - **Larry** told us about Marcus Garvey who was from Jamaica (see Additional Resources)
   - **Cameron:** we should have tunnels that go to separate parts of the building; glass boxes that spell out MUSEUM; a firetruck; room with black-lights w/ neon drums filled with paint that splatters when you hit the drum
   - **Larry:** Concerned that a kids area would still be included
   - **Sasha:** Legos
   - **Manuel:** Science; be able to build things like lamps and machines
   - **Sasha:** wants to learn more about Jamaica
   - **Manuel:** African drumming with families and girls who are dancing; an area where people can write notes
   - **Cameron:** a train that goes through the museum so you do not have to walk around

### Additional Resources:

1. Todd provided overview of Project and anticipated transformation into a discovery museum.
   a. Jody Blackburn: Lived in Grand Blanc; did not know about Sloan until recently; thought it was an automobile museum; suggested the new Sloan should be an asset to the community to enrich education; like to see it be a regular draw from the region; exhibits should pull people from at least 2 - 3 hours away; car guy; Sloan should be an asset to the community to enrich education; mentioned local children’s museum and his involvement with their organization; Mott Community College has a Fab Lab on campus (see Additional Resources); Flint Steamworks is mentioned local children’s museum and his involvement with their organization; Mott Community College has a Fab Lab on campus (see Additional Resources); Flint Steamworks is currently renovating former GM factory for large Maker Space that can be used by general public for their own projects, business development; etc. (see Additional Resources); Kettering University is opening car display in Factory One – this is also the location of photo archive and research (see Additional Resources); he feels the new Sloan should not compete with these organizations but would want it to complement them.
   b. Bob Sovis: Been around SLM for 50 years; was in parts industry for GM; Founder of two auto industry programs (see Additional Resources); Chevrolet history is important also; maybe the new gallery should be an “Automotive Gallery” not the “Buick Gallery”; must include the Model T story.
   c. Rosanne Heddy: lives within walking distance from Sloan; feels people do go to Sloan more often these days.
   d. Debbie Campbell: Most excited about the Maker’s Space for all ages with focus on trades; people to Flint in addition to the other events and activities the FCC offers; about 80% of attendance to FCC is people from Genesee County for FCC events.
   e. Haizlip Studio:增长了在 Flint；6th generation family was involved in GM; interested in historic aspect of Sloan but realizes young people need more in order to find it interesting; find a way to make history interesting; regarding the collection: some things might need to be preserved but they do not necessarily need to be on display; Flint was once a very dynamic place of “movers and shakers”; the “Birthplace of Pride”; too much written information in current Sloan; many artifacts are stuck on a wall and if they were in a contextual display they would be more interesting.
   f. Falding B. Gadola: Born in Flint; 6th generation; family was involved in GM; interested in historic aspect of Sloan but realizes young people need more in order to find it interesting; find a way to make history interesting; regarding the collection: some things might need to be preserved but they do not necessarily need to be on display; Flint was once a very dynamic place of “movers and shakers”; the “Birthplace of Pride”; too much written information in current Sloan; many artifacts are stuck on a wall and if they were in a contextual display they would be more interesting.

Discussion Notes:

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5. Affirmation that new museum should be move away from chronological story line
6. Exhibit/Theme: What does it take to be an entrepreneur / what are the traits of an entrepreneur? What are the risks?
7. Space for the young adult events is important

The preceding is assumed to be a complete and correct account of the items discussed, directions given, and conclusions drawn, unless this office is notified to the contrary. If no notification is received, these minutes will be deemed an accurate account of the meeting.

Notes prepared by: Mary Haizlip

Additional Resources:
Auto Fair
http://sloanautofair.com/info.html

FabLab at Mott Community College
http://www.mcc.edu/FabLab/

Flint Steamworks – Factory Two
http://www.flintsteamworks.org/

Factory One

Kettering University Automotive Systems
https://www.kettering.edu/programs-and-degrees/on-campus-graduate#auto

Baker College Automotive Program
https://www.baker.edu/programs-degrees/auto-diesel/

Mott Community College
http://www.mcc.edu/technology/lt_auto_tech.shtml
Sloan Museum
Museum Master Plan

February 16, 2017
Community Workshop: Visitors and Members – Meeting Notes

Meeting Location: Sloan Museum
Meeting Date: February 16, 2017, 5:30pm

Participants:

Discussion Notes:
Reb opened the meeting by describing the Project and the Sloan Museum’s anticipated transformation into a discovery museum. He then asked the participants to introduce themselves, tell us whether or not they are from Flint, and to describe a powerful memory of Flint and/or of the Sloan Museum.

1. Chapin and Gail Cook: Chapin is a “car guy”; his grandfather and father worked at GM; compares this museum to the Studebaker Museum in South Bend; museum needs more cars and an emphasis on automobiles from around the area
2. Bob Florine: lifelong Flint resident; the new outward appearance must be impressive; the Sloan is comfortable but needs an update
3. Bob Link: History helps him relate to family stories
4. Patty Morgan: 2nd grade educator (7-8 year-olds); likes participating with classroom programs; kids are fascinated with history exhibits; the visit to the Sloan is usually the kid’s first visit to a museum
5. Rowe sponsored about building a dam
6. from Detroit and Louisville; likes ASTC reciprocal membership perk and the Planetarium; enjoys going to the Air Zoo and Gilmore Duesenberg Museum; the Sloan building is not architecturally significant here but other museum building are; likes the courtyard and the potential to have cut-through paths similar to the Mall of America; he has been to 3 meetings at the Sloan and has only seen one black person – why are they not invited to these meetings?
7. from Flint; FCC is a special thing to share with people who hear so many negative things about Flint
8. Remembers the workshops and camps as a kid; enjoyed the dolls and the carriage; the Sloan is comfortable but needs an update
9. Want to hear more stories about how auto industry won WWII; likes exhibit that the cars get short changed – this is what built the city; Museum should tell story of immigration and how people came to Flint for jobs; he mentioned story of Greek family who came here, educated their sons and opened businesses; Factory One was the original carriage factory in 1880’s; loved Flint A-Z but it just scratched the surface of what could be told; tell story of Hellcat and of Pratt and Whitney building aircraft parts for B-24’s during war; people came from Copper Country in the UP to work at GM; include pictures of people living in tents outside of GM because there was not enough housing; GM built tents for workers; referenced book: St. John’s Street (see Additional Resources)
10. from Copper County in the UP to work at GM; include pictures of people living in tents outside of GM because there was not enough housing; GM built tents for workers; referenced book: St. John’s Street (see Additional Resources)
11. Karl Olmsted: graphic designer working on Sloan rebranding effort; Planetarium and Museum are highly regarded in community
12. Kettering will have an auto museum nearby with GM archives; Applewood has a collection as does the Library – Sloan should collaborate with these organizations
13. feels the placement of the gift shop in the current museum gives the wrong impression – it should be moved to the end of the experience and enclosed; must not be over commercialized
14. Sloan Member; born and raised in Flint; most disappointing aspect of Sloan is that the cars get short changed – this is what built the city; Museum should tell story of immigration and how people came to Flint for jobs; he mentioned story of Greek family who came here, educated their sons and opened businesses; Factory One was the original carriage factory in 1880’s; loved Flint A-Z but it just scratched the surface of what could be told; tell story of Hellcat and of Pratt and Whitney building aircraft parts for B-24’s during war; people came from Copper Country in the UP to work at GM; include pictures of people living in tents outside of GM because there was not enough housing; GM built tents for workers; referenced book: St. John’s Street (see Additional Resources)
15. electronic-retired from the Electrical Service and is now a volunteer at Sloan; he hears that kids are not interested in cars but he sees that they are, depending on what they can see and do; he gave the example of the ambulance in Winsor’s – they can interact with the ambulance; he mentioned 3 of Sloan’s cars will be located in the Factory One building; Factory One is a unique construction; Sloan’s competitors are the Gilmore Car Museum and the Henry Ford Museum; likes idea to use courtyard for exhibit areas; should try to get the cars out of storage as much as possible; many of the cars are off campus – it would save time if they were all under one roof – each time you move a car it runs the risk of being damaged
16. Knob Hill R&P; been in Flint for 36 years; was a chemistry professor at Kettering; GM houses were kits bought out of Sears catalog; AC made gorgeous ceramic tiles when they were not making ceramic spark plugs; wants to see more “future” science and hands-on science; referenced Robotics Lab at Kettering and she wants to see robotics taught at Sloan; show-off cutting edge science being done in Flint; History of Education system: Flint schools were once the standard for education; night school was very important to community; Flint is the birthplace of community education with night and weekend classes; include a 3D printer; display carriage to talk about how Flint was started; Cigar box makers; medical device manufacturing and research is important here; Kettering started as General Motors Institute then became GM Engineering Management Institute before becoming Kettering University (see Additional Resources); Kettering is a “big deal” in community; in the past they had a program with GM for students to work 4 weeks and go to school 4 weeks
17. Director of Public Library; CPA turned librarian; when she got her Masters in ‘96 she built a website on cars as her school project; her son and daughter-in-law held Star Trek themed wedding in the Planetarium; Deep sense of pride among community members for what happened here – what was made here; Community deeply cares about people; Library has a youth program that works to help digitize information; Flint history is not taught in schools anymore and kids and young parents don’t know much about Flint’s history; Exhibits need to change periodically; What can be made now?; People here are resilient and want Flint to do well; likes idea of changing history galleries; 1851 Ladies group created Library before Flint for its charter; people here valued education; Sloan is a great opportunity for new discovery; Library currently is programming around science, coding, making and electronics; feels people like the cars but 60% of visitors are school kids who are not interested in them
18. Kerry MacGregor: Has been in Flint since she was a kid but came to Sloan as a coordinator for the scavenger hunt program and the crafts for lock-ins; previous impression of museum was that it was just a car museum; likes idea of changing out exhibits; she saw all of the artifacts in the basement and realized how much is really here to see; her father is a WWII Vet and his reunion was here in the Halfway Café; it was a unique experience for them; when she comes back repeatedly as an adult her visits get boring; she likes the gift shop in the front so people can run in to visit just the shop.

19. Susan Bolhouse: not a Flint native; heard about Flint history through friends; her “Burning Comment”: people who mentioned Sloan’s competition only mentioned car museums, other museum to look at are Lansing’s children’s museum, Impression 5 Science Center – people need things for their minds; wants to see automated snack machines; the gift shop should be a “dessert”; must have rotating exhibits so things can be new and exciting; when she came to visit the Titanic exhibit she didn’t look at anything else because she knew she had already seen it all; people just walk by exhibits because they know it will be there next year and they can see it later.

20. Thom Self: Runs the car show; Sloan was supposed to be a car museum and a history museum; cars not being here has not set well with people; there have been a lot of car clubs who supported museum; he feel car display should be at least better than current Buick Museum; a lot of money went into adding the Restoration Lab and if this is lost people will be upset; cars are a symbol of the rich history; the collecting policy changes and some cars have not been accepted into the collection and he happy about that; doll collection is “spooky” and it takes up too much space; a Model T should not be here; wants to see a better rotation of cars.

21. Tom and Jacinda Fejedelem and daughter Sarah: Auto World had bad exhibits; museum he likes the best is Ann Arbor Hands On Museum; Tom was a stay at home dad and got a Sloan membership to bring kids; Jacinda came here because of the membership; they would like to see exhibits about people who came from Flint, went to school here and what they achieved; “Starts in Flint” could highlight people from here – people other than the Motts.

22. General Comments:
   a. Experience from parking lot to front door is not a good one
   b. There is no parking at Buick gallery
   c. Exhibit suggestion: There should be a small display of 10 items or so from the basement, people vote on the item they want to learn more about and make a changing exhibits about that item
   d. Black History: immigration from the South

HS Takeaways / Items for further discussion / Outcomes:
1. The people of Flint are proud of Flint and of Sloan
2. GM played an important role in education system – show link between GM and “Eds and Meds” of today
3. Stories must be told
4. Diversity and what it means to Sloan need to be further discussed
5. Affirmation that hands-on science is desired

Additional Resources:
- Studebaker National Museum
  https://studebakermuseum.org/
- Gilmore Car Museum
  http://www.gilmoremuseum.org/visit-explore-2/collections/
- St. John's Street: St. John Street: Through the melting pot: a historical and ethnic remembrance of the St. John St. Community, Flint, Michigan, 1874-1974
  https://www.amazon.com/St-John-Street-historical-remembrance/dp/000731AKW
- The Henry Ford
  https://www.thehenryford.org/visit/henry-ford-museum/
- GM AC Spark Plug Division and Flint Faience & Tile Company
  https://history.gmheritagecenter.com/wiki/index.php/AC_Spark_Plug_Division
- FIRST Robotics at Kettering University
  https://www.kettering.edu/about/first-robotics
- Young Innovators Fair at Kettering University
  Each year, Kettering invites young inventors ages 9-13 to display their inventions at the Young Innovators Fair on campus. The innovators present their inventions to peers, educators and other attendees at the fair. A total of 400 elementary students from nine K-12 schools in seven districts throughout Genesee County were in attendance to see the displays in May 2015. Students also participated in workshops led by Dr. Terri Lynch-Caris, Dr. Susan Farhat and Mark Taylor. See more pictures of the 2016 Young Innovators Fair
  https://www.facebook.com/KetteringUniversity/photos/?tab=album&album_id=1015405582893157
- Impression 5 Science Center
  https://www.impression5.org/