INVENTOR CENTER

Training Manual

Created in part by:

RMSC
Rochester Museum & Science Center

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Welcome to the *Inventor Center* engager training. This manual is meant to prepare you for implementing training of *Inventor Center* engagers who will serve as the front line facilitators in the exhibit. This manual provides you with information about the *Inventor Center*, activities that can be used to teach facilitation techniques, and the documentation needed to complete *Inventor Center* engager training. It consists of seven chapters and seven appendices outlining the training from beginning to end. You will help these engagers acquire the proper tools for facilitation in the *Inventor Center* exhibit through informal educational training. Once volunteers have completed this training they will become *Inventor Center* engagers and be equipped to bring an educational and enjoyable experience to visitors.

The following is an overview of the manual.

Chapter 1: The Inventor Center Exhibit

Discover the *Inventor Center* exhibit and better understand the inventive process that the space brings to visitors through hands-on personal inquiry.

Chapter 2: Training Preparation

Determine what needs to be done to prepare for your training; including reserving spaces, ordering materials, copying documents, and readying for the activities.

Chapter 3: Training Overview

Delve into the structure of the training and better understand how the training will be implemented on the day(s) you have chosen.

Chapter 4: Training Implementation

Use the activities provided to implement the *Inventor Center* portion of the training. Each activity is a building block leading to the other.

Chapter 5: Practical Application

Work with engagers to submerge them into the *Inventor Center* experience so that they can build confidence and implement their tools.

Chapter 6: Post-Training

Schedule engagers in the *Inventor Center* and work with the evaluations to maintain an effective training.

learn

build

experiment

share

CHAPTER 1

The Inventor Center Exhibit

This chapter delves into the Inventor Center exhibit as a whole. Due to its nature as a hands-on maker space, it is important to understand the components of the Inventor Center and how they work together. This chapter speaks to those components and explains the inner workings of the exhibit.

Welcome to the Inventor Center

Background: The *Inventor Center* exhibit was created out of a larger project called *Inventing Futures*. The *Inventor Center* is the hands-on component of this larger exhibit space having to do with invention and innovation. The development of this exhibit took months of planning, prototyping, and hard work. The goal of the project was to create a unique space for museum visitors to invent on a small scale and explore the world of invention and innovation through hands-on experiences and multimedia.

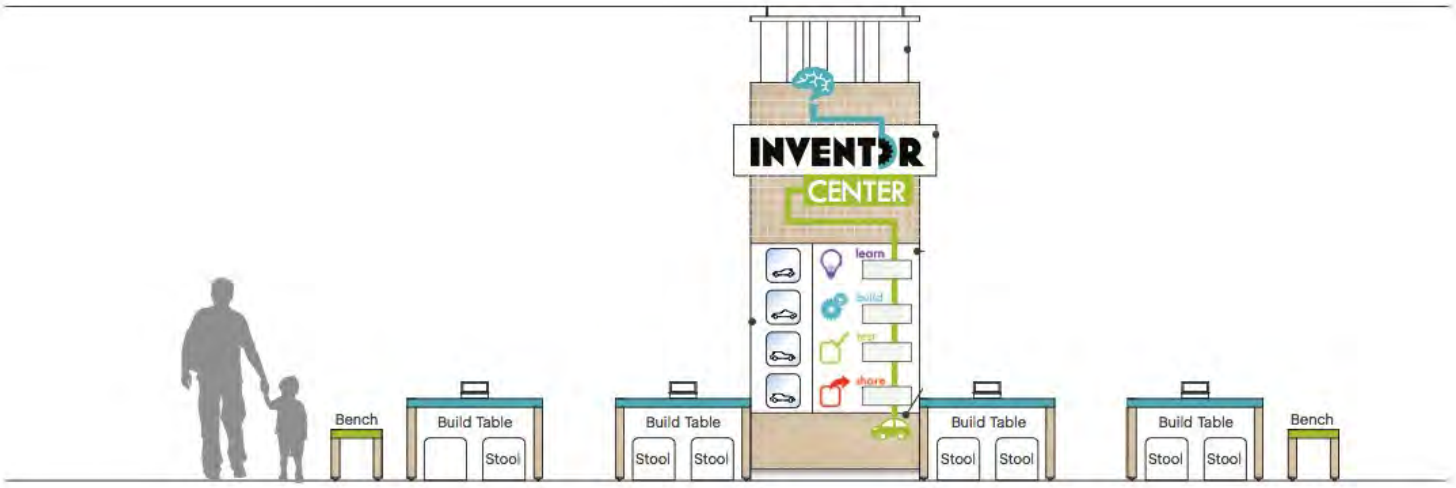
The Exhibit: The *Inventor Center* is a multi-faceted exhibit, bringing the world of invention to life; the overarching theme being, "Invention can happen anytime, anywhere." The exhibit blends electronic media and hands-on experiences to create a maker-space where participants can learn about a problem, build a prototype, test their results, and share their ideas and inventions with others. The space has separate areas where these can happen, but there is no specific order to the process, allowing for the visitor to have the freedom of exploration.

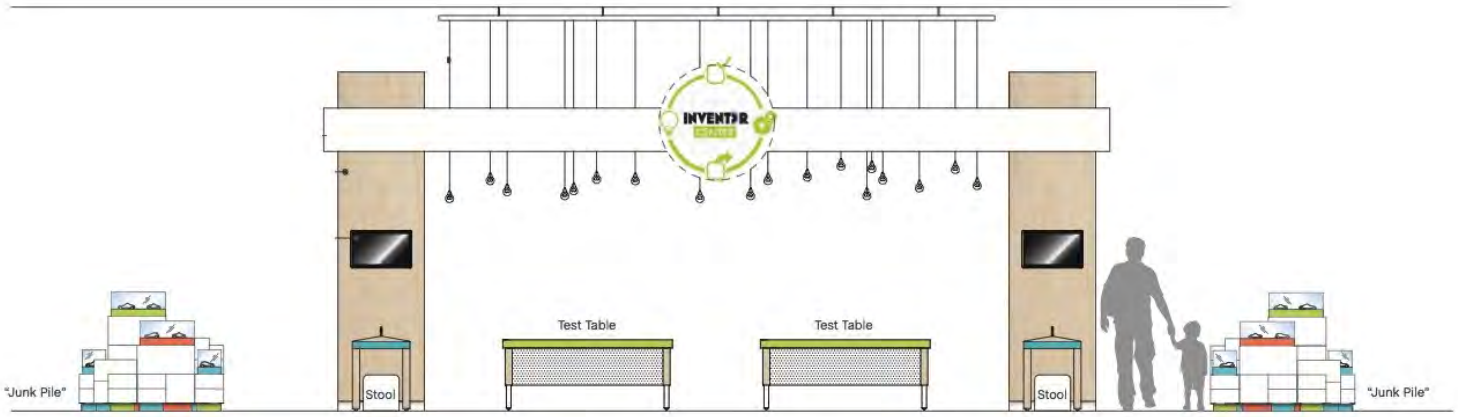
Components Within The Exhibit:

The exhibit is split into the various components of the inventive process. These components are learn, build, experiment, and share. Each component is outlined in the following to give a better understanding of the physical space.

Learn: Learning about the problem that your invention addresses is one of the main components of the inventive process. The "problem" is presented in the exhibit as a challenge that the visitors can try to overcome with their invention. There are multiple areas where learning is happening within the exhibit. The two main places are the columns that stand at the front and back of the exhibit, and the tablet housings on the build tables.

The columns have a few different methods of presenting a learning opportunity. On the front of the exhibit, the main panel explains the challenge presented in the space at any given time. Visitors can learn about the problem that they are asked to address in the exhibit. On the sides of the columns there are monitors that roll inspiration footage to catch the visitors' eye and get them to start thinking about the possibilities of the space.

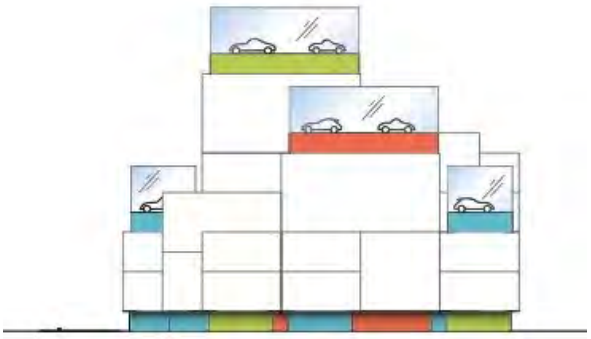




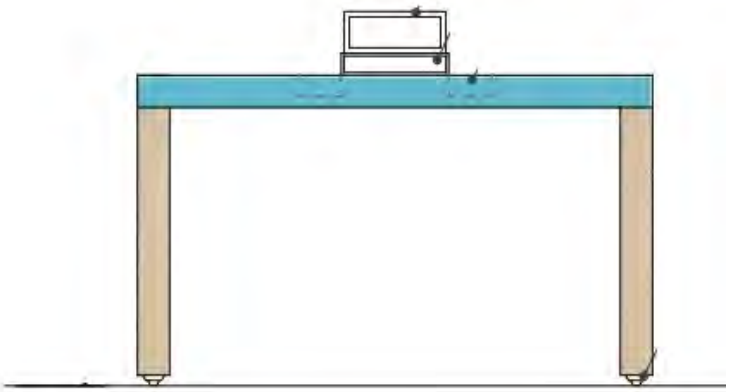
Four of the build tables have tablet housings that hold two tablets, one on either side of the table for visitors to access. These tablets have educational video pertaining to specific components of the challenge that may help visitors successfully create and test their inventions.

Build: Another main component of the inventive process is building your prototype, or inventing on a small scale. We have given the visitors raw materials and space to create their inventions. Two areas within the exhibit are specific to the build component: the junk pile, and the build tables.

The junk pile is where the materials are housed within the exhibit, there is one junk pile at the front of the exhibit, and one at the back of the exhibit. The junk pile is an aesthetically pleasing, sculpture-like area that organizes and holds the materials that visitors can build with.

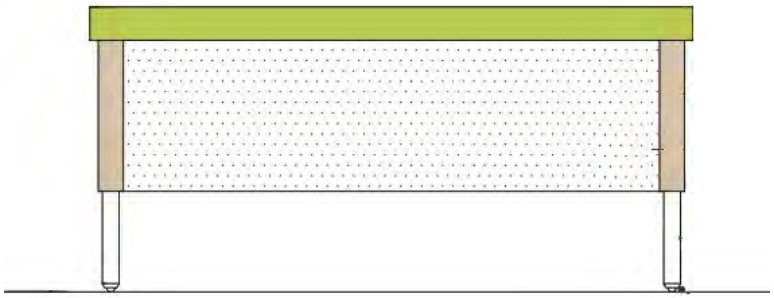


There are 8 build tables total within the space. These tables are the areas where the visitors can take their chosen materials and create their invention. The space can comfortably hold a class of 32 students at the build tables alone with four students per table.



Experiment: The experiment component of the inventive process is where the visitors can test their invention or the inventions of others. The experiment component changes out every 4-6 months in order to address a specific challenge that is running in the space. Examples of experiment experiences can be ramps, water channels, an electrified cityscape, and a launching range with a castle at the end. This space is very flexible, but is generally located in the same area of the exhibit and is housed on the test tables.

The experiment tables are metal frames that allow for different tops to be attached or removed per the challenge. They will typically be located on the left and right side of the exhibit. This is the area where the visitors can take their inventions or those of others to see how well they work.



Share: Sharing your invention and ideas with others is a very important component of the inventive process. The reason that you are able to use a cell phone is because someone invented it and then shared that with others. The reason that your cell phone is out of date within a few months is because new components have been invented, or improved upon and then shared with others. This concept of sharing your invention is highlighted in the exhibit in a few places: the photo-op and sell sheet creation area, and the trophy case.

The photo-op and sell sheet creation area is the place where visitors can take a photo of themselves with their invention and share it with others after emailing it home. If they desire to go a step further, they can use a sell sheet layout to insert their photograph and market their invention. A sell sheet is a marketing flyer that explains what the invention is and why consumers should purchase it. Marketing inventions is not only how merchandise is sold, but also how it is brought into the spotlight of innovation. Only by others learning about the invention can it have any impact on a larger community. This area of the exhibit is meant to bring invention one step further by the visitor thinking about the marketing aspect.

The trophy case is an area where the visitor can leave their invention. Due to the demand for raw materials, we are asking visitors not to take their invention home. They can do this virtually with their photo. The trophy case is where their invention can be put on display within the exhibit so that others can learn from them and use them. It also creates an atmosphere of invention happening right in the space. Unfortunately at the end of the day, or within a few days these will have to be taken apart, but for a short time a visitor can influence others in the space and have something they created themselves on display.

The Challenges: The *Inventor Center* will have a new challenge to be addressed by visitors every 4-6 months. Each challenge has different scientific components; however, the inventive process remains static within the exhibit. This allows for visitors to come back multiple times a year and experience something new.

Why This Is Different: What makes this exhibit so unique is that it is a hands-on maker-space that is multi-faceted and flexible over time. The exhibit is meant to be the vehicle for invention, innovation, exploration, and educational fun. Whereas many exhibits highlight concepts and have a pre-created experience for you to try, this exhibit does not. This exhibit gives the visitors the tools to create their own experience within the exhibit. They do not have to follow the challenge we have set for them, but the challenge allows for those who need more direction to enjoy themselves as well. Visitors can explore the inventive process in whatever way they want.

Inventor Center Challenges

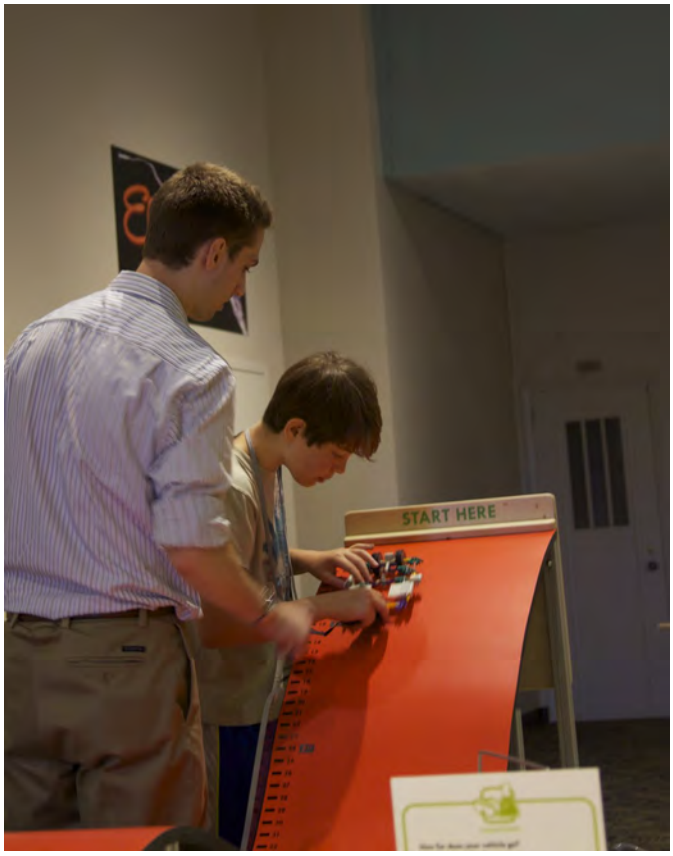
The *Inventor Center* was created with the process of invention in mind, however we have found that a significant number of visitors like to have a specific goal they can work at. This need for direction is what developed the challenges in the exhibit. The challenges are meant to give the visitor some direction on what to do without directing them through the inventive process. In other words the visitor has a goal that they can try to meet while inventing something. This of course is not required within the space because invention is different for everyone, but it works well with those who don't necessarily want to think in depth about what they want to make.

The Challenges: The *Inventor Center* will have a new challenge to be addressed by visitors every 4-6 months. Examples of challenge topics developed for the space are:

1. Wind: Create turbine blades that can efficiently power a city when running on wind energy.
2. Transportation: Create a vehicle that can carry supplies over a hill to stranded villagers in the valley.
3. Catapult: Create a catapult or trebuchet that can hurl a projectile into a castle a number of feet away.
4. Canal: Parameters undetermined.

Challenges will continue to be developed as long as the exhibit stands and allows for an ever-changing space without a complete change in infrastructure. Each challenge will have different learn content, different materials to build with, and different test experiences. These will all be challenge specific, allowing for the space to appear flexible. Each challenge is meant to model a real life problem regardless of relevancy, connecting better to the visitor.

Facilitation in the Inventor Center



Facilitation in the *Inventor Center* is particularly important in ensuring that visitors receive a better understanding of invention and enjoy their time in the exhibit. Facilitators in the *Inventor Center* are called *Inventor Center* engagers. Their main purpose is to engage the public in the exhibit and the inventive process. *Inventor Center* engagers are the front line for visitor service and educational outreach within the exhibit. In order to be that front line they must understand the main purpose of the *Inventor Center*, be able to effectively communicate with a range of visitors, and aid visitors while in the exhibit.

The *Inventor Center* training uses a variety of activities to prepare these engagers with the proper tools to fulfill these needs. Through personal inquiry, questioning strategies, and working with different visitors, the engagers will feel confident in their abilities to create a great experience for visitors.

Engagers will work hand-in-hand with visitors to create their inventions and further their understanding of the inventive process. They will ask probing questions when needed, to point the visitor in the right direction, back off when visitors want to work on their own, and be able to answer basic questions that visitors may have. This flexible approach allows for visitors to enjoy their time in the exhibit and give the visitor the attention they desire.

CHAPTER 2

Training Preparation

This chapter goes into detail the preparation required prior to the training. From volunteer recruiting to scheduling the training. Preparing for the training will keep stress down and allow you to give the best training possible.

Preparation Timeline

Two-three months before:

- Decide on dates
- Reserve spaces
- Recruit volunteers

One month before:

- Go through materials
- Purchase/order materials
- Go through manual
- Make appropriate changes to manual
- Meet with fellow trainers to prepare

One week before:

- Reread activities
- Fix damaged black boxes
- Put in work orders

Day before:

- Copy worksheets
- Put together folders
- Pull all materials

Day of:

- Set up the space
- Order food if needed

Volunteer Recruiting

Volunteers at the Rochester Museum & Science Center are recruited through a variety of ways by the volunteer coordinator. Most will apply through our webpage, some through career fairs and occasionally other sources. After application, potential volunteers then have a short interview to determine what they would like to do in the museum. The volunteer coordinator then works with these potential volunteers to find an appropriate place for them within the museum.

It is the volunteer coordinator's job to evaluate a potential volunteer's personality and the way they carry themselves. This then becomes part of the decision making on volunteer acceptance and placement. Someone who is quiet in person, but wants to work with kids, may be better suited for a place where working with visitors is one on one. Education volunteers, or Ask It! volunteers have specific requirements that can be found in the *Education Department packet* in appendix C.

Volunteers can be placed in a variety of areas, but all education volunteers are placed in the Ask It! program. *Inventor Center* engagers are a portion of these Ask It! volunteers who have a desire and an ability to facilitate in an exhibit with a high level of visitor contact and communication. See appendix B for a step-by-step process on volunteer acceptance.

A small number of volunteers are interns with more stable hours and requirements. See appendix B for the internship description.

Volunteers are all ages and each carries their own set of experiences. The following training will allow for each volunteer to gain the experience that they need to be successful in the *Inventor Center*.

All volunteers need paperwork filled out with their emergency information and background check prior to this training. Badges are issued prior to their volunteer start date.

Scheduling the Training

The following are the steps involved in scheduling an *Inventor Center* training.

1. Pick the dates that you would like to schedule a training, as all may not be available.
2. Determine the room(s) that you will need to reserve for your training.
3. Check with Member & Visitor Services (MVS) to determine if the dates and rooms you have chosen are open or an event is already scheduled.
4. If the date(s) you would like are open reserve the rooms for the date you have picked with MVS on the Central Calendar.
5. Once you have determined the dates, create a sign up sheet for the volunteers that may be interested in attending.
6. Determine what/if any work orders will need to be fulfilled for the training. This includes building services and AV work orders. If tables, garbage cans, and chairs are needed, determine the number and have a work order filled out a week in advance for building services. If an LCD screen, projector, TV, or anything similar is also needed, determine the number of each and the set up and have a work order filled out a week in advance for AV.
7. Make sure to have a final count of the number of people attending a few days ahead in order to have the correct amount of materials for the training.
8. Order any food that is needed for the training either the day before or day of, otherwise purchase snacks within the week.

All that is left is to gather materials, fill folders, and set up for the training the day of.

Best rooms to reserve: Carlson Inquiry Room, Brody Learning Lab

CHAPTER 3

Inventor Center Training Overview

This chapter goes over the training more specifically including both education and Inventor Center training. The layout of the training is supplied with descriptions of each portion of the training.

Training Introduction

Inventor Center Engager training is meant to give volunteers the tools necessary to successfully facilitate in the *Inventor Center* exhibit. The *Inventor Center* is unique in that there is no set script for the facilitation portion of the exhibit. Rather, the facilitation required is inquiry based, relying on asking questions of the visitor to get them to think critically and create something within the space. The visitor will not be handed answers or asked questions that have a right or wrong answer, rather they will be asked questions that get them to think in a different way about the way they are navigating the space and experiencing the inventive process. Facilitators will need to know when to ask these questions, when to back off and let the visitor take the lead, and when to probe deeper. As there is a variety of visitors to the museum, each visitor will be worked with on an individual basis and the facilitators must understand how to work with a variety of individuals with different experiences, abilities, and learning paths.

The training is set up in two sections; education training and *Inventor Center* training.

Education Training:

This training goes over the responsibilities of the museum floor as a whole, all Ask It! volunteers must go through this. The Floor Supervisor conducts this training and goes through each of the exhibits with an overview of the content that is represented and volunteer responsibilities therein. The training is meant to familiarize the volunteers with the floor and what they will be asked to do within the museum.

The education training provides the basis for the *Inventor Center* training. The volunteers will understand the layout and general workings of the museum. From there they will learn in more depth how to effectively communicate and engage in the *Inventor Center*, which can carry over to other aspects in the museum as well.

Inventor Center Training:

This training gives an overview of the *Inventor Center*, the responsibilities within the exhibit, and different ways to facilitate in the exhibit. This training uses Portal to the Public activities in conjunction with exhibit specific activities to prepare the volunteers with the tools needed to facilitate in the space.

Building on the education training, the *Inventor Center* training focuses on facilitation and interaction between visitors and the engagers. The education training content is paired with activities on how to communicate with visitors creating an effective tool set for the engagers to pull from.

Education Training

Welcome and Pre Training Evaluation– 10 minutes

Pleasure of Finding Things Out – 45 minutes

This is the icebreaker activity for the group. The volunteers work individually, or in pairs to determine what is in the black boxes using inquiry based learning. This type of learning will be very important in the *Inventor Center* exhibit.

Break – 15 minutes

Adventure Zone – 45 minutes

The volunteers will learn about Adventure Zone, including the simulators, Canal Lock, deep submergence vehicle, stream table, climbing wall, and more. Volunteers will understand their role and responsibilities in this exhibit.

Expedition Earth – 45 minutes

Volunteers will learn about local ecosystems, prehistoric Rochester and the organisms living in it, the mastodon, and more. Volunteers will understand their role and responsibilities within the exhibit.

Native Peoples/At the Western Door/Face to Face – 30 minutes

In these three sections of the museum volunteers will learn about Native Americans. In At the Western Door they will learn about the Seneca and Haudenosaunee, in Native Peoples and Face to Face they will learn about the native groups across North America. Volunteers will understand their role and responsibilities in these exhibits.

Underground Railroad – 15 minutes

Volunteers will learn about the paths of the Underground Railroad and those locally who used and kept it. The volunteers will understand their role and responsibilities within the exhibit.

How Things Work/Under Construction – 25 minutes

The volunteers will learn about the science behind everyday devices in How Things Work and discover construction trades in electrical, plumbing, and more in Under Construction. Volunteers will leave the exhibits understanding their role and responsibilities in each.

Wrap-Up – 10 minutes

Inventor Center Training

Evaluation – 10 minutes

Have the volunteers fill out the middle training evaluation after the education training, but before the Inventor Center training. This is to evaluate how effective further training is for volunteers on the floor.

Questioning Strategies – 50 minutes

The group will work in pairs learning how to use questions when helping visitors to think on their own through inquiry. The Inventor Center uses self discovery and inquiry based learning to highlight the inventive process. Question based facilitation allows for visitors to feel as though they are given information without losing the freedom of inquiry and personal choice.

Discovering Invention – 60 minutes

Volunteers will simulate the visitor experience in the *Inventor Center* by inventing their own prototype. They can use challenges like those used in the *Inventor Center* or create on their own. They will learn that the inventive process highlighted in the exhibit covers four separate parts. Through their invention they have covered these and perhaps in a different order than others doing the same thing. This exercise highlights the exhibit and what the visitor should get out of the exhibit.

Break – 30 minutes

Talk to Your Neighbor – 40 minutes

Volunteers will take their inventions from Discovering Invention and explain the process by which they created it. The trick is they are explaining it to a partner who is role-playing a specific type of visitor. This will help the volunteers to understand better and become more comfortable with visitors of different experiences, backgrounds, and abilities. Not all visitors are alike, volunteers must not treat them differently in an obvious way, but still cater to their abilities and needs.

Personal Learning – 40 minutes

Volunteers will develop a broader understanding of how people learn during this activity. Using their own experiences, interests, and understanding, they will identify an object and then compare their identification with others who have done the same. This highlights the wide variety of answers to the same questions and how personal experience or learning technique can influence that.

Wrap-Up – 10 minutes

Two Day Vs. One Day Training

Two Day Training: Consists of two days at approximately 4 hours per training session. Day one is education training, and day two is *Inventor Center* training.

The two-day training may be more effective than the one day training when dealing with volunteers who need time to absorb the content. Two days allows for the content to be delivered over more time, but in smaller sections. Volunteers complete the education training and then have time to reflect and absorb before heading into *Inventor Center* training. This reduces an overwhelming feeling and may produce better results.

One Day Training: Consists of one day split into two parts. The morning is education training and the afternoon is *Inventor Center* training.

The one day training is best when scheduling is a problem and people want to be trained all at once. While there is no break other than lunch between the two trainings, the connections between the trainings may be more evident due to a fresher memory. The one day training also allows for the facilitator to get everyone trained quicker if there needs to be a quick turnaround in the exhibit.

CHAPTER 4

Inventor Center Training Implementation

This chapter includes all of the activities for the Inventor Center portion of the training. Each activity is important to a different section of the training.

The day of the training pull copies of each of these activities for your reference. Be sure to have read through each one so that you are prepared to conduct them and make the necessary connections with the trainees.

The Pleasure of Finding Things Out

Main Idea:

Experiences of the pleasure of finding things out importantly involve aspects of personal histories, emotions, acquired attitudes, curiosity, inferences, risk and many other factors that constitute elements of learning. The most essential tool of inquiry is inference.

Developer: Paul Tatter, Explora

Category: How People Learn

Approximate length: 45 min

Format: Workshop

Relevant Objectives:

- Volunteers develop a broader understanding of how people learn and of the nature of informal learning environments.
- Volunteers understand the importance to learning of developing personal connections with learners based on shared experiences.

Assumed Prior Knowledge and Experience:

We assume the volunteers will have some assumptions about our goals and about our means of reaching them. We assume the volunteers have a fair level of personal curiosity and a will to inquire.

Room Setup And Materials Preparation:

It is important for the facilitator to experiment with the mystery boxes and materials several times before the workshop to become familiar with the range and variations of descriptions possible with the tools available. At least two days before facilitating this workshop, check each mystery box for loose parts or damage. This gives enough time for repair or replacement. It is advisable to keep a couple of spare mystery boxes in reserve. On the day of the workshop the tables to be used should be bare. Each table should seat not more than four workshop participants.

Process:

- Pass out a "mystery box" to each participant, along with pencil and paper. ("Mystery boxes" are sealed shoe boxes, inside of which are hidden various arrangements of materials: walls, ramps, cubes, cylinders, etc.)
- Tell participants, "Without opening or damaging the box, describe as completely and precisely as possible everything inside the box." Give them five minutes to try. "As you have ideas, jot them down on paper."
- Ask, "What are some words that could describe the room in the last five minutes?" List words. Draw attention to analogs that are mentioned (i.e. Christmas gifts). Additional questions to be asked here include:

- "What resources did you apply to exploring the boxes?"

- "Did you notice some differences among the boxes?"

- "What resources did you apply to exploring these differences?"

(Answers may include: senses, colleagues, pencils, hands, prior knowledge, imagination, reasoning.)

- "How can we group the words from our description of the room?"

- "How can we group the words describing the resources we applied?"

- During the discussion, have an assistant quietly set the trays of tools on the tables without calling attention to them.
- Tell participants, "Now, leave your box and anything you wrote down or drew about it, and sit at a new table with a new box. You should now have a note left by the box's previous investigator. Without opening or damaging the box, describe as completely and precisely as possible everything inside the box."
- Give participants about 5 more minutes. Ask, "What is different now from when we tried this before?" "How many of you have used the tools?" "How many of you waited until others used them?" "Why?"
- Ask, "How did the tools change things?" "Have you added anything to the written description?"
- Describe inquiry as transitory, continuous, a "journey of experience" for which the end isn't the point. The most essential tool of inquiry is inference. Without uncertainty, inquiry is impossible. We need to acknowledge doubt and then provide resources for making inferences. (This is a good time to look back at the "resources and tools" list generated earlier.)

• The media of inferences are suggestions. List suggestions for actions taken during the box investigation: shake it, try to look in the hole, weigh it, etc.

Ask, "Where did these suggestions come from?" (Answers may include: prior knowledge, senses, curiosity, a question, hands/bodies, other people, puzzlement, problem solving, tools.) Suggestions are tested by action.

• Change tables again, and this time work collaboratively with someone on another box. Tell participants, "For the next ten minutes or so, please focus on precision. How well can we describe the inside of the box? What do we use for descriptive precision in science?" Solicit suggestions like, "We rolled marbles inside to approximate the height of partitions."

• Ask partners in turn to share with the group their inferences about what is everything inside the box. Then, open these boxes and show everyone.

Half of the mystery boxes in this workshop will remain unopened (the ones not last investigated by the pairs). Ask, "What are some differences between what we can say about the unopened boxes and what we can say about the opened ones?"

• Share attitudes/emotions and behaviors/activity involved in "the pleasure of finding things out" and relate this back to the visitors' experiences on the exhibit floor.

Materials:

- One "mystery box" for each participant
- Blank paper, graph paper and pencil for each participant
- Tray of tools per table:
- 3 feet of string
- One pair tongs
- A magnetic compass
- A screw driver
- Handful of steel BBs
- Two feet of baling wire
- Tuning fork
- Two button magnets
- One bottle brush
- A ruler
- Handful of rubber bands
- A protractor
- A plastic dropper
- Big lump of modeling clay
- A spring scale
- Handful of paperclips
- A few steel ball bearings
- A few glass marbles
- Long-nosed pliers
- Roll of masking tape
- One wand magnet
- One stethoscope
- One dowel rod
- A hand lens
- One pair of plastic tweezers
- A drawing compass
- A flashlight (not LED if possible)

Variations or Modifications:

Suggested timing:

Part 1: First exploration of boxes – 5 minutes

Part 2: Discussion – 5 minutes

Part 3: Second exploration of boxes (with tools) – 5 minutes

Part 4: Discussion – 5 minutes

Part 5: Third exploration of boxes (with precision) – 10 minutes

Part 6: Share predictions; reveal boxes to group – 5 minutes

Part 7: Final discussion – 10 minutes

- One possible variation is to pull out participants' comments onto a chart at the front of the room. Suggested column headings include: Resources Used, Behaviors and Actions, and Emotions and Attitudes. The list will grow with new additions each round. At the end, the facilitator can ask the volunteers to make links between the items on the lists and everyday problem solving that they may have to work through. These comparisons reinforce the value of facilitating experiences for visitors that highlight the process of science along with the joy, frustration, and discoveries that come with it.
- Optional group brainstorm: At the end of the activity, invite participants to make their own conclusions about the characteristics of engaging activities. Suggested questions:

- What was it about exploring these boxes that kept you interested?
- What qualities of the activity and materials encouraged exploration?
- How can we generalize this list of good qualities to create guidelines for other activities, such as the ones you'll be creating?

Questioning Strategies

Main Idea:

This element highlights the power of using questions to facilitate inquiry-rich experiences with science center visitors. Through this series of role-playing activities, volunteers use questions to support learners in making their own discoveries.

Developer: Pacific Science Center

Category: Facilitation

Approximate length: 45-50 minutes

Format: Workshop

Relevant Objectives:

- Volunteers develop communication strategies that support inquiry.
- Volunteers understand the importance to learning of developing personal connections with audiences based on shared experiences.
- Volunteers develop a broader understanding of how people learn and the nature of informal learning environments.

Assumed Prior Knowledge And Experience:

This element assumes the volunteers are willing to participate in role-playing. As described above, this element works best after participants have a general understanding of how people learn, the nature of informal learning environments, and the power of helping visitors make their own discoveries.

Room Setup and Materials Preparation:

Before the workshop, practice the question sequence you will use in the demonstration role-play so that you are comfortable modeling the question types. Ensure that materials and handout are readily available.

Process:

Part 1: Introduction (5 minutes)

- Distribute the Questioning Strategies Handout. Introduce the concept of using questions as a strategy to facilitate discovery and to personalize learning experiences for visitors.
- Explain that there are different types of questions, and that the questions you choose to ask, along with the order in which you ask them, will strongly influence the quality of a learning experience. Run through a few examples of question types from the handout from each category (opening, exploration, and making meaning).
- Indicate that the "My Ideas" section will be used later when they consider what questions they would use in an interaction.

Part 2: Demonstration (5 - 10 minutes)

- Explain that, in a moment, volunteers will role-play learning interactions where the facilitator uses *only* questions to facilitate discovery. But first, they will watch you role-play an interaction. (Pick a workshop participant or your co-facilitator to help.)
- Instructions for role-play: Sit at the front of the room at a table with the "visitor." Place a 4-inch paper plate and golf pencil on the table. The facilitator's goal is to get the visitor to create a spinning top with these materials, and to then investigate its properties. The facilitator may ONLY ask questions to facilitate the interaction! Use the handout for ideas. Your question sequence might look like this:

  Have you ever seen a top before? What did it look like? How did it move?

  Do any parts of these materials remind you of a top?

  Would you like to create a top?

  Wow! What do you notice about how the top is behaving?

  What would happen if you spun it the other way?

  Why did you punch the hole in the center of the plate?

  What would happen if you moved the pencil to the outside of the disc?

  What do you think this tells us about how tops work?

- When this portion of the role-play is complete, ask for a few reflections or observations from the volunteers. Then, ask, "How would the interaction feel different if I facilitated it like this?" Today we are going to make a top. A top is a small toy that is pointy on one end and spins when you twirl it on a tabletop. I have given you a small pencil and paper plate to build your own top. This is what you will do [demonstrate how to punch the pencil through the center of the plate and spin the top]. Now, can you build a top?

- Ask for reflections and observations about the differences between these interactions. Emphasize how using questions helps visitors to make their own discoveries. Interactions like this are not only more meaningful personal learning experiences, they are also more satisfying and fun. Note that facilitating learning with questions in this way often takes more time, so it is important to be patient.

Part 3: Activity and discussion (45 minutes)

- Explain that now it is the volunteers' turn to role-play this type of question-rich interaction. There will be two rounds, each involving a different set of materials, so that every volunteer can be both the facilitator and the visitor. In each round, the facilitator's goal is to help the visitor explore their toy, investigate its properties, and discover as much about it as possible. Ask volunteers to pair up, and designate a "Partner A" and "Partner B."
- Group the "A" partners together and send the "B" partners out into the hall. Distribute a simple science toy or set of materials to the "A" group and give a quick explanation of how what they've been given works. Then, meet briefly with the "B" group and distribute a different science toy or set of materials (or have a second workshop facilitator meet with this group). With both groups, provide a brief overview and sample questions that the scientists might use to facilitate exploration and inquiry.
- The set of materials or science toy chosen can differ for each training. The suggested materials to be used for the *Inventor Center* facilitator training are a balloon helicopter toy and materials for the friction block activity. The balloon helicopter toys can be purchased on amazon.com or most party supply stores. The toy should include a base, balloons and blades. This toy should also come with directions that should be shared with the group they are given to. For the friction block activity you will need blocks for each participant as well as materials for the "visitor" to use in order to reduce friction between the block and the table (examples: straws, marbles, spools, etc.). The directions for this activity are simple: Use the materials provided to reduce the friction between the block and the table causing the block to roll faster or more smoothly across. The group given this activity to facilitate should be given time to experiment with it. While experimenting they should be thinking about ways they will assist the "visitor" in making the block roll faster or more smoothly across the table.
- Re-group partners and begin the role-play. Choose either the "A" or "B" group to be "facilitators" first, so that only one type of toy is being used in the room at any given time. Remind your facilitators that they should attempt to use questions ONLY to get their partners from the other group (the visitors) to explore the properties of the toy. Encourage your facilitators to use the Questioning Strategies Handout for ideas. If they get stuck, encourage them just to start asking questions and see what happens. Each round should take approximately five minutes.

• After each round, you facilitate a reflective debrief. Ask:

- What worked well?

- What was difficult?

- How were different questions effective or not?

- At what points did visitors make their own discoveries? What did that feel like?

- How was question sequence important?

- At some point during the discussion and reflection, it is useful to talk in a bit more detail about the question, "Why?" Volunteers may be falling into a trap of over-using this questioning technique, without understanding why visitors are unresponsive or frustrated when they do so. About the question, "Why?"

The question, "Why?" tends to be troubling for a lot of learners. It sounds like a simple question. But, in fact, it requires learners to consider the implications of many other questions in order to formulate a reply. Things learners may also be considering when, "Why?" is asked include:

"What?" "Where?" "When?" "Who?" "How much?" "How?"

This is the reason that many, "Why?" questions elicit the response of, "I don't know." The learner has to take too many things into account and becomes overwhelmed. Instead of asking, "Why?" try taking learners through a series of questions that will lead them to the conclusion you are hoping they will draw. Consider the following example:

The teacher is leading the student through a balancing activity. The student has just managed to balance an oddly shaped object on his finger. The teacher wants the student to express why this is being accomplished.

Teacher: *Why is the object balancing?*

Student: *I don't know.*

Teacher abandons the, "Why?" questioning strategy and tries the following questioning strategy instead.

Teacher: *As you were trying to get the object to balance on your finger, what things did you try?*

Student: *I tried holding it in the middle.*

Teacher: *What happened?*

Student: *It fell off my finger.*

Teacher: *What was preventing it from staying on your finger?*

Student: *There was too much weight on one side, and the extra weight pulled it down.*

Teacher: *How did you change the way you held it to fix this problem?*

Student: *I had to hold it closer to the heavier side so that there is the same amount of weight on both sides of my finger.*

Without ever using the word why, the teacher has guided the student through figuring out the answer to the original question. The student has expressed that the object is balancing because weight is equal on either side of the balancing point.

Materials:

- One 4-inch paper plate
- One golf pencil
- Questioning Strategies Handout for each participant
- Balloon Helicopter toy from amazon.com
- Friction Block Kit (1 per pair)
    - Wooden Block
    - Drinking straws
    - Bubble Tea straws
    - Wooden dowels
    - Marbles
    - Wooden spools
    - Container lids

Discovering Invention

Main Idea:

Invention can happen anytime, anywhere. It is not necessary to have complicated processes and years of schooling to be an inventor. Though an inventor will go through the inventive process, each will approach it differently due to personal experiences and their own skill set. The inventive process includes learning about the problem, building a prototype, testing the invention, and sharing the invention.

Developer: Rochester Museum & Science Center

Category: Inventor Center

Approximate Length: 60 min

Relevant Objectives:

- Volunteers develop an understanding of the inventive process and how it pertains to the *Inventor Center* exhibit.
- Volunteers understand how invention can happen at anytime, anywhere, and that it is universal.

Assumed Prior Knowledge And Experience:

We assume the volunteers will understand the concept of invention in basic terms, and be able to invent something of their own during the activity. We assume that they are interested and willing to learn about invention and the *Inventor Center* and then apply this when volunteering in the exhibit.

Room Setup and Materials Preparation:

Gather general arts and craft like materials for the volunteers to invent with, a list has been created for a materials base. If available, you may also use the Inventor Center exhibit. They are creating a prototype, whether it is a working model is up to them. Offer a variety of materials.

Some people do need inspiration if they can't figure out what they want to invent so we will be offering challenges for them to complete if they need further direction.

Process: 45 mins

- Lay out the challenges, the materials, and the test experiences on a table.
- Pose to the volunteers that they are to create their own unique invention. Tell them to invent something of their choosing using the materials at their disposal.
- They can use one of the challenges provided or go their own way to create their prototype. The model does not need to be a working prototype, but they should be able to explain its purpose.
- Explain that they have 45 minutes to complete their prototype and they are welcome to ask general questions of the training facilitators, work together, on their own, or use tools to create their invention.

Challenges:

- Build a car that can climb a hill.
- Create a catapult that can throw an object 25 ft.
- Create a never before seen vehicle.
- Build something never before seen that helps you complete an everyday task.
- Create an infrastructure or building that can withstand the natural disaster of your choice.

Optional Materials:

- Scissors
- Tape
- Rubber bands
- Paperclips
- Wire
- Toothpicks
- Paper
- Cardboard
- String
- Cups
- Soup cups
- Washers
- Dowels
- Wood blocks
- Plates
- Tin foil
- Pens
- Egg carton
- Index cards
- Straws
- Tongue depressors
- Batteries

Discussion: 15 mins

- Ask the group what they did or used to come up with their invention. Write these different ways down on a board or large sheet of paper for everyone to see.
- Ask the group what they created and its purpose. Write these down on a different area of the paper, or on a separate sheet.
- Lastly ask the group if they tried their prototype out, in particular if it is a working model. If they didn't ask them how they would test it if they had the materials. Write these on a separate section of the paper.
- Once you have the three sections, label each group appropriately with "build, "learn," and "experiment." Build is for the invention itself, learn is for the challenge or life experience that they were pulling from to create the prototype, and experiment is the "trying out" portion of the process.
- Explain that each of these things is part of the inventive process that is outlined by the Inventor Center. Ask them if they did any of these things in a particular order.
- Regardless of the answer explain that invention is an open ended process and can be entered from any point. When we invent we may start building and then realize a purpose for it, which means the learning came later, or we may learn first and then build, but realize that what we are building won't work which is further learning. Testing happens all of the time when we see if something works, and if it doesn't, we build some more, or learn some more. Essentially the process happens continuously in no order.
- Ask them if they thought they shared their invention. They may not know if they have, but explain that just working in a group on something is sharing, because you share ideas to create parts of the invention. Just talking about the invention and inventive process like we have been is sharing. This is the last piece of the inventive process outlined in the Inventor Center.
- Show the group the overhead schematic of the Inventor Center. Show them the areas that are highlighted for each part of the process and how they work based on the welcome to the Inventor Center document. This is available to them for further information.
- Tell them to keep their invention as they will be using it during the next activity.

Additional Resources:

Welcome to the Inventor Center found in Chapter 1

Talk To Your Neighbor

Main Idea:

Science center visitors each bring their own unique interests, prior knowledge, and motivations into any learning experience. This activity allows volunteers to practice discussing concepts related to their invention with different audiences and to explore communication strategies that support learning.

Developer: Pacific Science Center

Category: Facilitation

Approximate length: 25 – 55 min

Format: Workshop

Relevant Objectives:

- Volunteers develop communication strategies that support inquiry.
- Volunteers understand the importance to learning of developing personal connections with audiences based on shared experiences.
- Volunteers develop a broader understanding of how people learn and the nature of informal learning environments.

Assumed Prior Knowledge and Experience:

We assume that volunteers are willing to participate in role-playing and to reflect on their experiences. We assume that volunteers have personal experiences and knowledge that will be varied in both content and proficiency, which will allow for a variety of perspectives in this activity.

Room Setup and Materials Preparation:

No special setup is required beyond having inventions previously made by trainees available.

Process:

Part 1: Reflection (10 - 15 minutes) *Optional*

- Place stacks of scratch paper on the table. Ask volunteers to identify one or two fundamental concepts related to the big picture of invention, the inventive process, or the Inventor Center as it pertains to their invention. Ask participants to use the scratch paper to brainstorm about the following aspects of communicating these concepts:

- Questions they might ask visitors to assess prior knowledge and interest

- Analogies to describe processes or phenomena

- Examples or references that could bring these concepts to life

- Points of relevancy to everyday life (Why does it matter?)

- Logical sequencing of these ideas

- Explain that these ideas will help to build a "toolbox" of strategies that can be used to communicate these concepts with different audiences.

Part 2: Activity (10 - 30 minutes)

- Ask volunteers to identify a partner for the role-play experience. Hand out one bag of "Talk to Your Neighbor" character cards per pair.
- During the role-play, partners will take turns explaining their concept or invention to each other. During each interaction, the "non-engagers" will draw a card from the bag and become the character listed on it. The cards include everything from "5th grade science fair champion," to "retired politician." The character-partner should take liberties in the role, making some assumptions about the interests, motivations, prior understandings, and mannerisms of that character. The "engager" then practices talking about invention concepts and processes. The facilitator can suggest that the volunteers begin by answering the question, "What is invention about?" The activity as a whole should be a two-way conversation, so facilitators should encourage participants to use active dialogue and questions on both sides.
- Remind participants that when they are characters, they should be reasonably agreeable so that the volunteer can actually practice. Sometimes for humor, participants pretend to become completely disinterested or difficult, and this is not the point of the activity. The non -engagers in the role-play should draw a new character card each time they switch.
- Be prepared to provide the group with guidance or information on the perspectives of some of the characters they might play. It is common for participants to ask for advice on dealing with specific age groups (especially with children), the media, and policymakers.

- Facilitators can choose to time these role-plays in different ways. One option is to time strict rotations, signaling partners to switch roles every 3 – 5 minutes. A second option is to let partners self-switch every few minutes as they see fit. The second option is advantageous in some instances because it allows for natural variation in the length of each interaction. However, the facilitator should monitor groups to ensure that they are switching at reasonable intervals. Regardless of which timing format you choose, be sure to provide clear instructions.
- If engagers are using their invention to assist in their interactions, facilitators should allow for more time (5 – 7 minutes) per interaction.

Part 3: Discussion (5 - 10 minutes)

- Facilitate a large-group reflection to wrap up the activity. Prompt discussion with:

- How did it go?
- What surprised you? What was easier or more challenging than you expected?
- Was it fun?
- Did you get any new ideas?
- How do you think this role-play is similar or different from what you will actually experience in the *Inventor Center*?

- Note that most of the interactions in this role-playing activity are one-on-one scenarios. In a science center setting, engagers will likely interact with a family or group as often as they will with individuals. Discuss how a group dynamic is different from what they experienced today, and brainstorm strategies to best facilitate programs for groups in the Inventor Center.

Variations or Modifications:

• For a more challenging activity, consider grouping workshop participants into trios instead of partners. During each rotation, one person will explain their work and two people will be characters, having each pulled a separate character card.

The volunteer whose turn it is to explain their invention will then face the challenge of addressing multiple people. This variation is suggested for groups that have experienced this activity before, or who are ready for more challenging interactions.

Materials:

- *Talk to Your Neighbor* character cards sets, one bag of cards per pair (found in Appendix D)
- Inventions made during Discovering Invention
- Scratch paper for each participant
- Pens for each participant

Personal Learning

Main Idea:

This is a brief introduction to the idea that individuals enter learning situations with their own personal sets of experiences, interests, curiosities, motivations, misconceptions, and understandings—key ideas in constructivist theories of learning. This element focuses on building volunteers' theoretical understanding of this concept, rather than providing opportunities for practical application.

Developer: Pacific Science Center

Category: How People Learn

Approximate length: 20 – 45 min

Format: Workshop

Relevant Objectives:

- Volunteers develop a broader understanding of how people learn.
- Volunteers understand the importance of developing personal connections with audiences based on shared experiences.

Assumed Prior Knowledge and Experience:

We assume volunteers are interested in learning some of the concepts that form the basis of how people learn in general, and constructivist theories of learning in particular.

Room Setup and Materials Preparation:

No specific setup is required except to ensure the tabletops are cleared of other materials. Have the windup toys ready to be passed out at the beginning of the activity.

Process:

Part 1: Activity (10 minutes)

- Give each volunteer some kind of novel material, piece of equipment, or toy that they can play with. It is important that all participants receive identical objects. Pacific Science Center uses wind-up toys from Kikkerland Design. Let the volunteers experience their materials and play without any further instructions for about three minutes.
- Pass out the Personal Learning Worksheet that accompanies this element and ask volunteers to record their thoughts about this experience. The prompts on the worksheet include:

- The first word that came to mind when I saw it was…

- It reminds me of…

- I'm curious about…

- I know the following about how it works…

Let the volunteers continue to play a few minutes longer while they fill out the worksheet.

- Regain the focus of the whole group. Explain that you will lead a "round robin" to share reactions to the objects. Read each line on the worksheet, "The first word that came to mind when I saw it was…" and then go around in a circle with each volunteer saying aloud his/her written response. Continue for each line on the worksheet.

This exercise is often funny, as diverse perspectives on the same object come up. For example, one person sees a bug and is curious about how well it will move upside down, while another sees a "golden snitch" and wants to figure out how they could modify it to make it fly. One person "knows" that gears affect its movement, while another "knows" that it is painted red.

Part 2: Reflection and discussion (5 minutes)

- Explain that this activity demonstrates a concept important to learning: People enter environments and situations with their own personal motivations, curiosities, understandings, interests, conceptions, and misconceptions. We can create engaging and meaningful experiences by acknowledging and accommodating what individuals bring with them to activities.
- Facilitate a group reflection on this topic. Questions may include:

- Where did similarities and differences in what each participant brought to the table occur?

- If we were to extend the experience, how could we respond to individual interests and curiosities?

- What would you like to explore next? How is that different than the person sitting next to you? How could we accommodate that difference?

Part 3: Presentation and discussion (5 - 10 minutes)

- Read or paraphrase key parts of *Fish is Fish* by Leo Lionni. It is not necessary to read the entire book. A good stopping point is page 20, or the page of illustrations right after the line, "Ah, if he could only jump about like his friend and see that wonderful world." Use the story to demonstrate, once more, how new knowledge is layered on top of prior knowledge, and how new knowledge is influenced by our individual and personal motivations and curiosities.
- Emphasize that it is important for facilitators to acknowledge and value what learners bring into any learning experience. Always consider, "In what way is the learner like the fish in the story?" Research shows that when prior ideas are taken into account, learning is richer.
- It is important to remind volunteers that, just as they should not assume that visitors are familiar with particular concepts, the reverse is true, as well. They should not assume that visitors have no familiarity with particular concepts. Volunteers don't want to end up in the awkward situation of explaining a cell to a molecular biologist!
- Explain that it is important to have a two-way dialogue where you can pick up on cues and assess each individual's prior knowledge and understanding as you go along. However, be careful of the, "Do you know what X is?" question. These questions can be intimidating and put visitors on the spot.

Part 4: Reflection (10 - 20 minutes) OPTIONAL

- Pass out the Audience Prior Knowledge and Interest Worksheet (found in Appendix D). Ask participants to spend about 10 minutes reflecting on and filling out their worksheet. The questions on it include:

- What do you think most school-aged children know about invention? What part of invention do you think they will be most interested in?
- What do you think most adults know about invention? What part of invention do you think they will be most interested in?
- How will you assess and respond to the individual levels of prior knowledge and the unique interests of your audiences?

- Alternatively, you can have the workshop participants discuss these questions with partners or small groups without using the worksheet by having the workshop facilitator share the questions with participants orally and prompting groups when it is time to move from one question to the next.
- Allow time for small groups or pairs to share their insights and reflections. Then, regroup and facilitate some large group sharing and reflection. The most important insights typically center on the techniques for how to assess and respond to the audience's knowledge and interest.

Materials:

- Some type of novel material or piece of equipment, one per participant. Kikkerland wind-up toys can be found at http://www.kikkerlandshop.com/1528.html. It is important that each participant play with the same item, so that reactions can be contrasted.
- Personal Learning Worksheet for each participant. It does not need to be printed on a full sheet of paper – a half-sheet or quarter-sheet should be fine.
- Audience Prior Knowledge and Interest Worksheet
- Pens
- *Fish is Fish* by Leo Lionni

Additional Resource:

Bransford, John D., Ann L. Brown and Rodney R. Cocking, eds., *How People Learn: Brain, Mind, Experience, and School* (Washington, DC: National Academies Press, 1999)

CHAPTER 5

Practical Application

This chapter goes into the practical application portion of the training. Practical application is important to submerge the volunteers in the facilitation experience with real visitors. Improving comfort level while putting training tools to use.

Practical Application Day Overview

The purpose of the practical application day is to submerge the volunteers into the Inventor Center facilitation experience and implement their training in a more comfortable way. Current volunteers are at hand to ask questions, help volunteers deal with unique and difficult situations, and more clearly define volunteer expectations. The volunteers will get a taste for the work that they will be doing so that they can be more comfortable when they work on their own.

The practical application day lasts 2-3 hours either in the Inventor Center exhibit or in a similar temporary setup. The volunteer will shadow a current volunteer to get the full experience without the pressure of performing on their own.

Volunteers already in the space, who facilitate particularly well, are ideal candidates for shadowing. However, when unavailable, the training facilitators can be in the space to serve the same function.

Facilitation of this magnitude has not been a part of the volunteer force at the RMSC within recent years. Due to this it was understood that volunteers may feel nervous about facilitating in general. The practical application day has been implemented specifically to relieve this nervousness and boost confidence.

Practical Application

Main Idea:

Putting the components learned from training into practice can sometimes be a daunting task for a volunteer. Practical application is a way of immersing the volunteer in the exhibit as a facilitator in order to use the tools they've gained and still be able to ask questions of the trainers and improve their confidence before facilitating on their own.

Developer: Rochester Museum & Science Center

Category: Inventor Center

Approximate Length: 2-3 hrs

Relevant Objectives:

- Volunteers develop a familiarity with the exhibit and how to facilitate in the space with actual museum visitors.
- Volunteers understand how the space operates, the requirements of the space, and how to best facilitate and best create a good visitor experience within the Inventor Center.

Assumed Prior Knowledge and Experience:

We assume that volunteers are interested in facilitating within the Inventor Center exhibit and have a desire to speak with and help visitors in the space. We also assume that volunteers have taken what they have learned in training and plan to use it during practical application.

Room Setup and Materials Preparation:

Within the Inventor Center:

- Use the current challenge
- Use current setup

Outside of the Inventor Center:

- Use a prototyping setup.
- Reserve space on either the first floor or second floor in front of the planetarium windows.
- Set up 4 tables. One against the wall by the window for the materials, and three for people to sit around and build.
- Place materials needed on materials table.

Process:

- Introduce the volunteer to the Inventor Center Engager they will be shadowing within the space.
- Have the engagers work with visitors that want to interact with the space. Have them pose the challenge and work with the visitors to invent.
- Explain how the space works to the volunteers prior to their practical application. Explain the expectations of them in the space and tell them that they can ask questions at any time during their practical application session.
- Have the volunteers fill out the post-training evaluation after they have completed the practical application day.

Materials: challenge specific. Use the materials within the space. If the space is unavailable, pull prototyping materials from the Atrium, or wherever the storage space is. Check with the Director of Education for prototyping supplies if unsure.

Alternative Option: Have the volunteer shadow a training facilitator. The training facilitator will stay up in the space if a volunteer to shadow is unavailable, or the day is particularly busy and would hinder facilitation by the scheduled volunteer in the space.

CHAPTER 6

Post Training

This chapter addresses what should be happening after training concludes. This includes scheduling engagers in the Inventor Center, evaluation of the training, and response analysis. We want to ensure that the training remains effective, evaluation will be important to sustaining that.

Scheduling Volunteers in the Inventor Center

Once training is completed and volunteers are approved for floor duty in the Inventor Center, they can be scheduled in the space.

Volunteers are scheduled by the floor supervisor. At the end of each month the supervisor will ask for the next month's availability. The Inventor Center exhibit itself is open a variety of hours dependent upon the Education department. Inventor Center engagers are to be scheduled like other volunteers, but engagers are required to be in the space anytime it is open.

It is ideal to have two volunteers up in the space at any given time to deal with traffic and clean up at the same time. In particular during set up and tear down, two engagers are helpful.

Evaluating the Training

Evaluating this training on a constant basis is important in developing it further to create a highly effective training program. Due to the changing nature of the exhibit, the changes in visitor demographics, and the changes in volunteers, the training needs to be flexible and changeable over time.

The training should be evaluated each time with the pre-training, mid-training, and post-training evaluations. The compiled information from each evaluation session should also be placed in this manual for documentation and easy access to information.

See appendix E for the evaluations and evaluation response information.

Conclusion

The Inventor Center is unique to the RMSC requiring a unique version of training for facilitators within the space. The Portal to the Public activities and concepts were ideal for this training and made up the majority of activities. Other activities were developed to work with Inventor Center concepts while still using a PoP structure. This training went through both how to facilitate within the space effectively and how the Inventor Center operates. It was important to pair these concepts to properly prepare new facilitators.

Appendix A: Inventor Center Exhibit Information

Includes the exhibit layout, evaluation card, and opening/closing procedures.

Appendix B: Training Preparation Documents

Includes the Inventor Center internship description, Ask It! volunteer induction process, and Inventor Center Engager recruiting poster.

Appendix C: Training Documents

Includes a schedule of the education and Inventor Center trainings, the education department volunteer packet, and important staff document.

Appendix D: Training Implementation Documents

Includes questioning strategies worksheet, personal learning worksheet, talk to your neighbor cards, and a training notes/script section.

Appendix E: Post-Training

Includes pre-training, mid-training, and post-training evaluations, as well as an evaluation response summary.

Appendix A

Inventor Center Exhibit Information


"BLUE PRINT" CARD HOLDER
SPECTATOR BENCH 1'-6" X 5'-6"
SPECTATOR BENCH 1'-6" X 5'-6"
BUILD TABLE 2'-6" x 4'
TEST TABLE 2'-6" X 6'-0"
TEST TABLE 2'-6" X 6'-0"
BUILD TABLE 2'-6" x 4'
PORTABLE STORAGE CART
PORTABLE STORAGE CART
"WEDGE" STOOL
BUILD TABLE 2'-6" x 4'
BUILD TABLE 2'-6" x 4'
DASHED LINE INDICATES HEADER ABOVE
1'X1'
18"X18"
2'X2'
1'X1'
2'X2'
18"X18"
1'X1'
18"X18"
2'X2'
1'X1'
1'X1'
"JUNK PILE"
MONITOR
LOCKED STORAGE 3' X 5'
MONITOR
"PRESS CONFERENCE" BACKDROP
SHARE WALL (MEDIA OR LOW TECH)
"WEDGE" STOOL
"WEDGE" STOOL
"WEDGE" STOOL
"WEDGE" STOOL
STOOL 15" DIA.
"WEDGE" STOOL
"WEDGE" STOOL
"PARENT LOUNGE"
MONITOR
TROPHY CASE
LOCKED STORAGE 2' X 5'
MONITOR
1'X1'
1'X1'
2'X2'
18"X18"
1'X1'
18"X18"
2'X2'
1'X1'
2'X2'
18"X18"
1'X1'
1'X1'
"JUNK PILE"
"WEDGE" STOOL
"WEDGE" STOOL
BUILD TABLE 2'-6" x 4'
PORTABLE STORAGE CART
PORTABLE STORAGE CART
BUILD TABLE 2'-6" x 4'
BUILD TABLE 2'-6" x 4'
TEST TABLE 2'-6" X 6'-0"
TEST TABLE 2'-6" X 6'-0"
BUILD TABLE 2'-6" x 4'
SPECTATOR BENCH 1'-6" X 5'-6"
SPECTATOR BENCH 1'-6" X 5'-6"
"BLUE PRINT" CARD HOLDER

RMSC Inventor Center Evaluation Card

Date_____

Age of Participating Visitor (tally below)

Under 3	
4-7	
8-12	
13-18	
Over 18	
Other (Specify College students, grandparents, etc.)	

Gender of Participating Visitor (tally below)

Male	
Female	

Notes

RMSC Inventor Center Evaluation Card

Date_____

Age of Participating Visitor (tally below)

Under 3	
4-7	
8-12	
13-18	
Over 18	
Other (Specify College students, grandparents, etc.)	

Gender of Participating Visitor (tally below)

Male	
Female	

Notes

Group Dynamics (Tally Below)

Parents Helping	
Parents Observing	
Parents Leaving	
Other (school groups, friends, etc.)	

Visitor Dwell Time (tally below)

Under 10 Min.	
10-15 Min.	
15-30 Min.	
30-45 Min.	
45-60 Min.	
60-90 Min.	
90-120 Min.	
Over 120 Min.	

Notes

Group Dynamics (Tally Below)

Parents Helping	
Parents Observing	
Parents Leaving	
Other (school groups, friends, etc.)	

Visitor Dwell Time (tally below)

Under 10 Min.	
10-15 Min.	
15-30 Min.	
30-45 Min.	
45-60 Min.	
60-90 Min.	
90-120 Min.	
Over 120 Min.	

Notes

Inventor Center Opening and Closing Procedure

Opening Procedure (9:30-10:00am):

- ☐ Get purple vest from the hooks to the left of the Welcome Center and swipe in at volunteer kiosk.
- ☐ Pick up radio and keys from Floor Supervisor office; call Unit 25 to let them know you are in for the day.
- ☐ Open cabinets and put on apron.
- ☐ Wake up all tablets by pushing any button.
- ☐ Place standing challenge signs and scissor/ tape bins on the build tables without learn media.
- ☐ Put build materials into junk piles and shopping baskets out (starting with the pile closest to Under Construction). Make sure all materials are in correct locations using the pictures inside cabinet door as reference.
- ☐ Place "emergency supplies", stop watches, calculators, a scale and proper signage on both experiment tables. Also, Put out one alignment experiment on one table and one balance experiment on the other table with signs.
- ☐ Go into Atrium for vehicles made the prior day. Choose 4-6 vehicles to be put on display as inspiration until others are built. Choose only cars that do not use Automoblox wheels. Draw a star on the back of the tag of display vehicles.
- ☐ Put all chairs down at build tables.
- ☐ Take apart all other vehicles from the prior day. Salvage as many materials as possible and put pieces back into the junk pile (this can happen after 10am if needed).

Throughout the Day:

- Greet Visitors as they enter exhibit, make sure to mention that inventions do not go home with them.
- Supply tags to visitors for inventions going into trophy case. Have children write their name and age on tag.
- Clean up build tables and put away unused supplies after visitors leave.
- Take apart starred inventions from the previous day if supplies are getting low or trophy case gets too crowded.
- Take notes on Evaluation Cards and call Floor Supervisor on radio with any questions or concerns (Unit 25).

Closing Procedure (3:30-4:30pm):

- ☐ Starting at 3:30 let any new visitors coming into the Inventor Center know that the exhibit closes at 4pm.
- ☐ At 3:45 give all visitors a 15 minute warning. If no one is working at one of the sides of the exhibit you may start closing that side up but ONLY if no one is working there.
- ☐ Collect scissor/tape bins and free standing challenge signs and put them into cabinets.
- ☐ Gather materials and signs from experiment tables and place into cabinets.
- ☐ Wipe all table surfaces down using spray and cleaner kept inside of cabinet. Wipe down learn tablets by spraying plexiglass specific cleaner onto cloth and wiping down surface. Do not spray directly onto plexiglass.
- ☐ Flip stools on top of tables.
- ☐ Put junk pile supplies neatly into shopping baskets and into the cabinet. You may leave out the cups and straws.
- ☐ Take all inventions from the day and put them into shopping baskets. Store these in the Atrium to be taken apart in the morning.
- ☐ Put apron back into the cabinet and make sure both cabinets are locked up for the night.
- ☐ Call Unit 25 on the radio to let them know the Inventor Center is closed up and you are leaving for the day.
- ☐ Return radio and keys to Floor Supervisor office, return purple vest to the lobby and swipe out at volunteer kiosk.

Appendix B
Training Preparation Documents

The following is a description for an Inventor Center internship. Each intern will go through the same training as volunteers and will supplement volunteer hours within the exhibit.

Project: Inventor Center Engager
(Exhibit Facilitation Intern)

Description: Facilitate visitor engagement in the Inventor Center exhibit, a "maker" space where visitors invent solutions to a given challenge. Engagers coach visitors through the inventive process, encourage "trying again", explain science content as needed, and answer general questions. Engagers are also responsible for making sure the space remains a clean, inviting and safe environment by throwing away trash and ensuring supplies are put away after use. Required skills include excellent verbal communication, problem-solving, and reliability. Engagers must be comfortable working with people of all ages and backgrounds. A background in Education, Engineering, Mechanical Engineering, Physics, Psychology, Anthropology, Recreation and Leisure, or Museum Studies is preferred. On-site training is required.

Hours per week: variable; minimum commitment of 60 hours over the lifetime of the position.

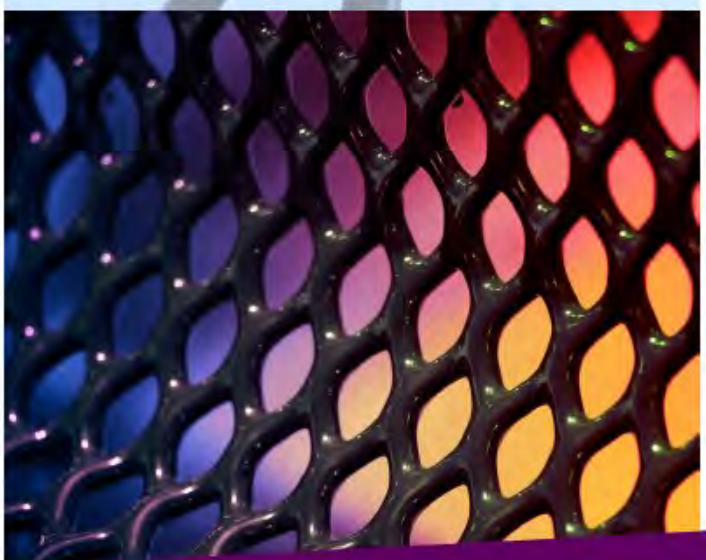
Contact: Please send a cover letter and resume to Lauren Tagliaferro, Administrative Assistant, Education.
Lauren_Tagliaferro@rmsc.org

"Ask It – Science Guide -Volunteer"

Application : Applications come in to the **Volunteer Coordinator**

- Review : Volunteer Application is reviewed by the **Volunteer Coordinator.** Applicants are asked if they have any specific content background as part of the application. After review, applications for those that may be good candidates for "Ask it" are forwarded to the **Floor Supervisors** for review.
- Initial Training : If approved, the **Volunteer Coordinator** schedules volunteers for general orientation and safety training (emergency protocols, volunteer check-in, and general RMSC information). Background checks are completed. After background checks are cleared, "Ask it" volunteers are scheduled for education training by/with **Floor Supervisors** (customer service, basic gallery content, visitor engagement techniques, radio protocols). At this time, volunteers are asked what areas they would like to volunteer in (ex. Expedition Earth, greeter, cart demonstrations, Inventor Center, etc…).
- Scheduling : **Floor Supervisors** ask volunteers for their availability each month, and schedule volunteers according to their given availability and desired areas to volunteer in, keeping in mind the needs of the RMSC and its' visitors.
- Uniform : All Ask-it volunteers wear purple vests. Those that have identified themselves as having a specific content background due to their current/past/pursued career will have badges for their vests "Ask Me About My Science Career".
- Mentoring : **Experienced Ask-it volunteers** (e.g. Jack Hayward) will mentor new volunteers with similar backgrounds, lending support and advice and generally checking in on their satisfaction.
- Supervision : Day to day supervision of Ask-it volunteers will be the responsibility of the **Floor Staff Supervisors.**
- Follow-up Training : Online training modules through Survey Monkey will be developed by **Floor Supervisors** and made available for volunteers to improve their understanding of specific exhibit galleries. Ask-it volunteers with specific content expertise will be utilized to support training workshops for existing Floor Staff and Career Ladder staff. Quarterly meetings will be held to connect Ask-it volunteers, promote a sense of team, and provide additional opportunities for skill development.

BECOME AN INVENTOR CENTER ENGAGER



Inventor Center **Engagers are volunteers interested in science, invention, and technology who want to share their interests and knowledge with others. Engagers help create a fun and interesting experience for visitors in the *Inventor Center* exhibit by mentoring them in the inventive process.**

Becoming an Engager:

Engagers participate in the *Inventor Center* Engagement Training, a series of 2workshops focusing on developing skills to effectively communicate with and engage Rochester Museum & Science Center visitors. Participants learn about the concepts presented in the *Inventor Center* exhibit and familiarize themselves with the process of invention.

Engagers work hands on in the exhibit with other volunteers and staff to create an enjoyable experience for visitors. Inside the exhibit engagers explain inventive concepts, help gather and clean up supplies, ensure safety, and coach visitors in creating their inventions.

Each engager is required to volunteer for a minimum of 60 hours during their time at the Rochester Museum & Science Center. Scheduling available through the Floor Supervisor.

Engager Benefits:

Inventor Center Engagement Training completion certificate for reference in a résumé; acknowledging commitment to scientific communication and visitor engagement.

Opportunity to network with museum professionals and other volunteers committed to creating an enjoyable environment for visitors at the Rochester Museum & Science Center.

For More Information

Contact Terrie McKelvey, Volunteer Coordinator, terrie_mckelvey@rmsc.org, 585.697.1948.

PORTAL to the Public

RMSC Rochester Museum & Science Center

Appendix C

Training Documents

Education Training

Welcome and Pre Training Evaluation– 10 minutes

Pleasure of Finding Things Out – 45 minutes

This is the icebreaker activity for the group. The volunteers work individually, or in pairs to determine what is in the black boxes using inquiry based learning. This type of learning will be very important in the Inventor Center exhibit.

Break – 15 minutes

Adventure Zone – 45 minutes

The volunteers will learn about Adventure Zone, including the simulators, Canal Lock, deep submergence vehicle, stream table, climbing wall, and more. Volunteers will understand their role and responsibilities in this exhibit.

Expedition Earth – 45 minutes

Volunteers will learn about local ecosystems, prehistoric Rochester and the organisms living in it, the mastodon, and more. Volunteers will understand their role and responsibilities within the exhibit.

Native Peoples/At the Western Door/Face to Face – 30 minutes

In these three sections of the museum volunteers will learn about Native Americans. In At the Western Door they will learn about the Seneca and Haudenosaunee, in Native Peoples and Face to Face they will learn about the native groups across North America. Volunteers will understand their role and responsibilities in these exhibits.

Underground Railroad – 15 minutes

Volunteers will learn about the paths of the Underground Railroad and those locally who used and kept it. The volunteers will understand their role and responsibilities within the exhibit.

How Things Work/Under Construction – 25 minutes

The volunteers will learn about the science behind everyday devices in How Things Work and discover construction trades in electrical, plumbing, and more in Under Construction. Volunteers will leave the exhibits understanding their role and responsibilities in each.

Wrap-Up – 10 minutes

Inventor Center Training

Evaluation – 10 minutes

Have the volunteers fill out the middle training evaluation after the education training, but before the Inventor Center training. This is to evaluate how effective further training is for volunteers on the floor.

Questioning Strategies – 50 minutes

The group will work in pairs learning how to use questions when helping visitors to think on their own through inquiry. The Inventor Center uses self discovery and inquiry based learning to highlight the inventive process. Question based facilitation allows for visitors to feel as though they are given information without losing the freedom of inquiry and personal choice.

Discovering Invention – 60 minutes

Volunteers will simulate the visitor experience in the *Inventor Center* by inventing their own prototype. They can use challenges like those used in the *Inventor Center* or create on their own. They will learn that the inventive process highlighted in the exhibit covers four separate parts. Through their invention they have covered these and perhaps in a different order than others doing the same thing. This exercise highlights the exhibit and what the visitor should get out of the exhibit.

Break – 30 minutes

Talk to Your Neighbor – 40 minutes

Volunteers will take their inventions from Discovering Invention and explain the process by which they created it. The trick is they are explaining it to a partner who is role-playing a specific type of visitor. This will help the volunteers to understand better and become more comfortable with visitors of different experiences, backgrounds, and abilities. Not all visitors are alike, volunteers must not treat them differently in an obvious way, but still cater to their abilities and needs.

Personal Learning – 40 minutes

Volunteers will develop a broader understanding of how people learn during this activity. Using their own experiences, interests, and understanding, they will identify an object and then compare their identification with others who have done the same. This highlights the wide variety of answers to the same questions and how personal experience or learning technique can influence that.

Wrap-Up – 10 minutes

Education Department Volunteer Packet

Rochester Museum & Science Center's Mission

The Rochester Museum & Science Center stimulates broad community interest and understanding of science and technology, and their impact—past, present, future—on our lives. (RMSC Mission adopted by the Board of Trustees on May 21, 2008)

Volunteer Mission

Volunteering at the RMSC! Volunteers are an essential resource of the Rochester Museum & Science Center. The involvement of hundreds of talented, committed individuals greatly extends the range, quality, and variety of RMSC programs.

If you cannot make a volunteer shift that you have been scheduled for

PLEASE contact the Floor Supervisors.

Call and leave a voicemail to ensure that both Supervisors receive the message

(585) 271-4552 ext. 376

RMSC
Rochester Museum & Science Center

Education Department Volunteers Include:

Science Guides, Inventor Center Facilitators, and Greeters; all of these positions are part of the Ask It Explainer Education Department Volunteer team.

Individuals who enjoy getting people excited about science, technology, cultural heritage, and the environment. They work in the hands-on and traveling exhibit halls, according to their area(s) of interest. In addition, Education Volunteers are members of our daily operations team who help create an environment for excellent visitor experience. Volunteers are responsible for providing fun and safe learning experiences for the RMSC's diverse audiences. As well as carrying out the daily operations within the museum galleries and monitoring all exhibit floors.

Education- Ask It Explainer- Volunteers Always:

Enjoy working with children and families
Are excited about RMSC content
Are outgoing and willing to engage visitors in exploration and discussion
Are able to commit to a schedule or your choice
Monitor and interact in particular exhibit halls
Engage with visitors
Share your interests in everything from Nanoscience to paleontology

Examples of Assignments:

- **Simulator Operator:** Operate simulator ride vehicles to provide our visitors with a unique submarine experience taking them to the bottom of Lake Ontario, as well as specially scheduled rides on anticipated high visitation days.
- **Expedition Earth Guide:** Monitor and interact in a paleontological dig where visitors can chip away at a hard material to expose mastodon bones.
- **Ask It Explainer- Floater:** Travel the exhibit halls to assist other volunteers, engage visitors, and maintain exhibits.

Education Volunteer -Ask IT Explainer- Opportunities

FIRST FLOOR

Adventure Zone: Explore the underwater world of Lake Ontario as your dive the lake floor in a Deep Submergence Vehicle. Examine the rock layers of the Genesee River Gorge in the climbing wall. Operate the fill valves in an interactive model of the Erie Canal lock. Get hands on in the Stream Table to see how erosion shapes the formation of our landscape.

Discover Our Weather in the Adventure Zone Gallery: Experiment and discover at interactive stations throughout the exhibit. Learn about a low pressure system, what causes lightning and more. Use a computer program to create a forecast to present on camera in the Weather Studio. Record your performance, and email it to a friend!

Expedition Earth-Glaciers & Giants: The spectacular first phase of Expedition Earth—a total re-creation of the Rochester Museum & Science Center's natural science exhibits. Meet ice-age giants, enter a twisting tunnel through an icy glacier, and journey through an amazing landscape of upstate New York hasn't seem in thousands, or even millions, of years.

Expedition Earth-An Ever Changing Planet: Discover how Rochester once sat at the bottom of a tropical sea south of the equator. There are interactive experiences, hands on specimens, and the sensational visual environments. An Ever-Changing Planet looks at volcanoes, earthquakes, and the continual shifting and sliding of the earth's surface. Marvel at the beautifully restored and enhanced Undersea Diorama depicting the teeming underwater environments and tropical seas that covered the land more than 350 million years ago.

Expedition Earth-Object Theater: In an ever-changing planet gallery: discover the story of our region's rich natural resources of water, wind, rocks and minerals in this multi-media theatre experience. Find out why Rochester enjoys an abundance of fresh water and wind energy, where the vast deposits mined by American Rock Salt originated, and how these gifts of nature have shaped our history, Sound, light, images, and the RMSC collections objects create a unique experience.

Expedition Earth-You and Your Earth: Explore the environment we live in today. Discover the connections that we humans have to all of the life forms around us. Examine hundreds of objects from the RMSC natural science collections. Discover how you can be an "H2O Hero" and care for your precious waters. Rediscover spectacular dioramas of our local environment featuring black bears, beavers and the Bergen Bog. Young visitors will particularly enjoy the Beaver Lodge, complete with puppets and costumes. Visit the "Bio-Bulletins Theater" for updates from the American Museum of Natural History about current issues in biological science and the global environment.

MEZZANINE

Raceways: Experiments with Newton's laws of motion have never been so fun! Send balls looping, spinning and racing over ramps.

Carlson Inquiry Room: Students and teachers use scientific inquiry to explore scientific phenomena in this unique, fun learning environment. RMSC Education staff work directly with you to accommodate your curricular needs, guiding your students' curiosity and discovery.

SECOND FLOOR

At the Western Door: The hundreds of objects displayed show the Seneca's and Haudenosaunee's creative response to new technologies and material introduced following European Contact. Clan and family continue to bind communities together and define who the Seneca and Haudenosaunee are.

Face to Face: Face to Face brings together more than three hundred and fifty objects from the RMSC's anthropology collection. The exhibition is designed to allow visitors to encounter some of the ways that identity is expressed in societies ranging from the Haudenosaunee in the northeastern United States to the courts of Imperial China. You will see a range of expression and diversity that is both provocative and entertaining. Our aim is to show that as we come face to face with others, we discover ourselves.

Flight to Freedom Explore the paths that courageous freedom seekers followed through Rochester in this dramatic, interactive exhibition. Walk in the footsteps of Austin Steward, Frederick Douglass, Harriet Jacobs, and Reverend Thomas James as they overcome huge obstacles to build free lives. Learn how they joined Rochester activists in the fight to abolish slavery and help others seeking freedom. The exhibition is presented with support from the City of Rochester and the Underground Railroad Heritage Trail, a program of the New York State Office of Parks, Recreation and Historic Preservation.

Energize It: the power, the energy, and the choices— in your hands: What powers our bodies, cities and planet, and is neither created nor destroyed? Answer **ENGERY** Developed and built by RMSC Staff and, ENERGIZE IT brings you through a multi-sensory, highly physical experience where YOU hold the power!

Nano: NEW JUNE!!! *Nano was created by the Nanoscale Informal Science Education Network (NISE Network) with support from the National Science Foundation.* Imagine and discover a world you can't see! The exhibit is the chance for all ages to become enthralled with the world of nanoscale science, engineering and technology. The exhibit's hands-on components present the basics of nanoscience and engineering, introduce some real-world applications, and explore the societal and ethical implications of this new technology.

THIRD FLOOR

The Rochester Business Hall of Fame: Discover stories of exemplary Rochester leaders who have made outstanding, enduring contributions to business and community in the greater Rochester region. Honorees include historical figures such as Nathaniel Rochester, Hiram Sibley, Frederick Douglas, and George Eastman; as well as such contemporary leaders as Robert Wegman, B. Thomas Golisano, Matthew Augustine, and John Riedman.

Electricity Theater: Electricity Theater a science show experience featuring a dazzling display of indoor bolts of musical lightning produced by twin solid-state Tesla coils. Watch the dark theater become splashed with light, and allow that spark in you to ignite as you explore the excitement of electricity and all that goes with it: Lightning, conductors, insulators and storm safety. What IS a Tesla coil? A Tesla coil is an electrical resonant transformer circuit used to produce high-voltage, low-current, high frequency alternating-current electricity. Nikola Tesla invented his coil around 1891with the intention of transmitting electricity wirelessly through the air. This was 50 years before mobile communication. He spent the majority of his career attempting to achieve wireless power with the goal of using a few coils spread across the globe to transmit electrical energy through the earth. Tesla also used the coils to experiment in radio transmission. Today, at the very heart of every radio, you will find a circuit exactly like that used in a Tesla coil. Tesla's research wasn't limited to wireless energy, though. His research included some of the first experiments of X-rays, radar, hydroelectric power, the modern electric motor, alternating current, remote control, neon lights, wireless communication, and patents contributing to the transistor.

How Things Work: Discover the science behind everyday devices in this hands-on, minds-on exhibit. Through fun, first-hand investigation, find out how mechanisms such as light switches, thermostats, and traffic signals work.

KEVA brings out the designer, architect and engineer in each of us. Precision cut, identical construction blocks, **KEVA Planks** are about ¼-inch thick, ¾-inch wide, 4 ½-inches long and stack with surprising stability. No glue or connectors are involved. Using only gravity, you'll dabble with physics in order to achieve balance, optimum proportion and a steady structure. Create castles, bridges, trains, and full scenes such as landscapes, farms or arenas—use your imagination!

Under Construction Building Careers: *Under Construction: Building Careers*, built by RMSC staff, showcases the fascinating work of translating a building from vision to completion. Use your hands and minds to: Maneuver a giant crane to move bricks, run wires through 2x4-studded walls to build a simulated working electrical system, install plumbing for a sink as well as install a p-trap for outflow. Also, hear from local professionals! Local electricians, plumbers and other construction professionals narrate their story of building the Golisano Institute for Sustainability on campus at the Rochester Institute of Technology (RIT). What do these experts do? What are their interests? How did they get where they are today? Explore how the industry has changed, and the vital role that sustainability plays in this impressive building. Watch a cool time-lapse video of the construction of the building!

Inventor Center: *Inventor Center* encourages you to explore the thrilling process of invention. *Inventor Center* includes a series of participatory stations: learn, build, test and share. Visitors have a chance to learn about a problem, build a prototype, test your results and share your ideas or inventions with others (not necessarily in that order). Hop into the process at any point and see what you can do! This is a facilitated area that requires additional training.

How Volunteers Relate to RMSC History and Future

Without the many dedicated volunteers over the last one-hundred years RMSC would not be the cultural epicenter it is today. By working directly with the community through volunteer involvement RMSC offers great diversity in informative styles. When a volunteer takes on a position they bring additional unique insights and charisma, which encourage both paid and unpaid staff making each individual irreplaceable.

As a volunteer your behavior directly reflects the RMSC! Daily conduct, language, and actions have an immediate impact on public perception. As a result, please remember to be respectful at all times.

The public will often judge an organization by the behavior of its paid and unpaid staff. Actually, that's probably the only thing that the public has to go on because the behaviors exhibited by the paid and unpaid staff demonstrate, in the eyes of the observers, the values, culture and vision of the organization. 1

1 Herman, Melanie and Jackson, Peggy, *No Surprises: Harmonizing Risk and Reward in Volunteer Management*. (Nonprofit Risk Management Center 2001) 65-66.

Volunteer expectations/ code of conduct

- Smile! If you are happy to be here, they will be too!
- Promote Membership & the Rochester Community
- Explain programs eloquently. Customers will appreciate the clear correct information you can share with them.
- Always remember to put yourself in the customer's shoes
- Never say No, or I Don't Know, Instead, say "Let me find out for you" or bring people to the front desk
- Be sure your body language reflects what you are trying to say to customer. It sounds simple, but truly goes a long way.
- Our work is a team effort.
- Always remember to welcome each customer in RMSC
- A clean area will give our customers a welcoming feelingà help keep RMSC litter free.
- Eye contact is our first form of customer contact

Personal Activities

- Personal conversations must cease while waiting on a customer. We are here to help them, not to make them feel as though they have interrupted us.
- Conversations are to be of appropriate content. If you would feel uncomfortable as a customer hearing the ongoing conversation, then it is of an inappropriate nature. Remember that RMSC believes in cultural, racial, and religious diversity. The RMSC believes in acceptance of varying viewpoints in order to foster cultural diversity.
- If you find yourself with nothing to do always ask for a task
- If you must read, read discreetly. Reading content should reflect your job duties. There is a lot of information to learn and know about the RMSC, Rochester, and other local cultural institutions. If you are bored let us know to find correct placement

Representing RMSC: Also see **Volunteer Handbook** section RMSC Image Policies, Appropriate Clothing

- Think about the RMSC's family oriented image when selecting your clothing for work.
- You should be able to perform all of your job duties in any outfit you choose to wear to work

- Your comfort and confidence are important but please use discretion
- Remember to always have your ID Tag, name button, and clean pressed clothing.
- Park in the large parking lot in the rear of the planetarium; this will maximize parking space for our visitors.
- Purple Vests are to be worn while volunteering on the Floor.
- Rest breaks: 15 minute break granted for individual working for more than four hours
- Lunch break granted for an individual working more than six hours
- All personal property should be stored in the lockers provided for staff in the closet. A lock can be checked out at the front desk to future secure property

Directly contact the Floor Supervisor in the follow situations

- If you are going to be late or sick please call to let us know by leaving a phone message at 585-271-4552 ex 376
- If you have questions about your position or are interested in requesting a new assignment never hesitate to ask

Education Volunteer

NAME_____

ADDRESS_____

CITY_____STATE_____ZIP CODE_____

TELEPHONE_____

EMAIL_____

EMERGENCY CONTACT_____#_____

SIGNED_____DATE_____

Please check off ALL AREAS you are interested in working

___ **Expedition Earth Including the Dig Site**

___ **Adventure Zone**

___ **Simulator (18+)**

___ **Inventor Center**

___ **Raceways**

___**How Things Work**

___ **KEVA**

___ **NANO**

___ **At the Western Door & Native Peoples**

___ **Rochester's Underground Railroad**

___ **Under Construction- Building Careers**

___ **Working on an Interactive Checklist**

___ **Science Encounters**

___ **I am happy to volunteer anywhere needed in the Education Department**

*** The Floor Supervisor will do the best to schedule you in your preferred areas. However, we would appreciate your flexibility to try any of the above areas based on the RMSC visitor's needs.**

Important Staff Members

Floor Supervisor:

The floor supervisor is the person you will have primary contact with. They are the person who you will report to each day for your volunteer shift. Floor supervisors can answer your questions, help you with certain tasks, and work with you to create a great experience for museum visitors. The floor supervisor is responsible for ensuring that the museum experiences run efficiently during operating hours, amongst other tasks.

Volunteer Coordinator:

The volunteer coordinator is the person that recruits and works with volunteers to place them properly within the museum. Volunteer experiences are offered by the volunteer coordinator, who suggests where volunteers are placed based on the volunteers' experience and the museum's needs. The volunteer coordinator can answer questions about volunteer opportunities within the museum and planetarium, and can work with you to find additional volunteer opportunities.

Welcome Desk Attendant:

The welcome desk attendant is the first person that museum visitors see when they walk in. They sell the tickets to visitors, field general museum calls, answer general questions of visitors, work the museum shop, and have a direct line to the floor supervisors via radio. The welcome desk attendant can answer general questions that you may have, and can call the floor supervisor for you upon your arrival.

Security:

Security works throughout the grounds of the museum and planetarium to ensure the safety of staff, volunteers, and museum visitors. You may see security walking around the building checking on exhibits and visitors to ensure a safe environment and a great experience for all who visit.

Appendix D

Training Implementation Documents

Questions to Facilitate Inquiry

Opening Questions	Opening questions invite participation, provoke curiosity, and give you the chance to get to know someone new.
Would you like to try this? What does this (image, prop) remind you of? Would you like to help me solve this problem? Have you ever (been to the ocean, looked up at the stars, felt an earthquake)? Tell me about it. Have you ever seen this before?	My ideas:
Exploration Questions	Exploration questions encourage active play, experimentation, discovery, and thoughtfulness. They help to access prior knowledge.
In what ways are these materials different? In what ways are the materials the same? What materials did you use? What would happen if? What might you try instead? What does it look like? What does it remind you of? What can you tell me about what happened? What could you do instead? Which one do you have more of? How are you going to do that? What do you (feel, hear, taste, smell)? What is it made of? What do you call the things you are using? Have you ever seen anything like this before? What if we try? What happens when (two magnets are held together, a rock is dropped, water is heated up)?	My ideas:
Making-Meaning Questions	Making-Meaning questions facilitate reflection, support inference, aid understanding, and inspire further exploration.
Why do you think that happened? What evidence makes you think that? How do you think we could explain that? What if we changed (one variable)? What do you suppose the connections might be between (proved examples)? What do you think this tells us about (fill in the blank)? How could we find out if this is true? Do you have an idea how we could test this out? What do you think we might learn if we repeated this experiment again and again? What would you need to find out more?	My ideas:

Personal Learning Worksheet

The first word that came to mind when I saw it was…

It reminds me of…

I'm curious about…

I know the following about how it works…

What do you think most school-aged children know about invention? What do you think these individuals might be interested in?

What do you think most adults know about invention? What do you think these individuals might be interested in?

How will you assess and respond to the individual levels of prior knowledge and the unique interests of your audiences?

Engineer	Retired Couple	4-Year-Old Twins	Neighbor
Colleague/Peer	Grocery Store Clerk	Middle School Student	Science Journalist
Foreign Exchange Student	5th Grade Science Fair Champion	12-Year-Old Boy	Retire Politician

Nanny with a Sleeping Baby	Distracted Child	Adult with Visual Impairment	Adult with Hearing Impairment

Inventor Center Training Notes/Script **(Unofficial notes taken during training, not complete)**

Introduction

Portal to the Public is meant to train scientists to engage with the public. Awarded a mini-grant to train in Inventor Center specific information. Working with PoP materials and some other stuff that we have developed. First thing we will be doing is Pleasure of Finding Things Out, then Questioning Strategies, then 15 min break, then Discovering Invention, then Talk to Your Neighbor, then Personal Learning. Each is 45mins to an hour, and the time is somewhat flexible.

Amy is the report for when you are in the Inventor Center.

Pleasure of Finding Things Out

First step is to get a box. Everyone is going to get a box that we will be handing out. There is something inside your box and we don't know what is in it. No one should open the box, and you want to find out what is precisely in the box. Please do not open or damage the box. Everyone gets their own box. Try to be able to explain openly and completely what is in the box. Please take some notes while you are exploring, if you hear something or see something. This piece of paper will stay with the box.

(Write on the board "Inquiry is transitory, continuous a journey of experience for which the end isn't the point. The most essential tool of inquiry is inference. Without uncertainty, inquiry is impossible.")

What were some words you could use to describe the atmosphere in this room in the last five minutes?

Quiet
Curious
Plain

Did anyone talk to each other at all?

Any other words? It was definitely quiet.

What resources did you use when looking in the box?

Listening

Did anyone shake their box? Like a little kid on Christmas.

Did you look inside? Use your eyes?

Yes.

Used the lights to angle. Looked in the hole.

Stuck a pencil in it. Lifted it to see how heavy.

Put hands on either side to see what is rolling and where.

Next thing is to find a new box at a different table. Keep the current box, and paper there. At the new box add what to what the previous person wrote. We will do five minutes again.

(Give time reminders to keep on track)

What was different about the room?

People at different places.

What appeared?

Tools

How many people used them? How many didn't?

Why?

Waiting until next round.

How many people saw someone else use them and then didn't.

As adults we feel we need to be told we are allowed to do something. How did the tool change things? Were you able to find out more about the box?

Able to probe the box.

Did you try a magnet?

Did, but it didn't work. Tried a marble to see where obstacles are.

This time you will work with someone else and find one box to work on together. This time you can use the tools. Every group will get a piece of paper, and you have to draw a top view down of the box and what exactly is in it. Try to go a box you haven't gone to yet. Find a partner and a new box.

Try to get everyone to explore a box they haven't had.

Finish up and draw your last few things.

Let's talk for a minute about how the room was this time. Was it as quiet? Was it easier or harder to work with someone else? Did you get different ideas from someone else? Did the tools help a lot? Do you have a good idea? How do you feel about your box?

Did anyone in the beginning think all the boxes were the same?

Talk about the quote.

Inquiry is important in the Inventor Center. Everyone is going to come from different backgrounds. Some people are going to not know what something is. When you use certain words, like "dradle" some people know it, but some don't. It depends on where you grew up, the country you are from. When you are working with someone else, they may say something is in the box that immediately comes into their mind that doesn't with you. Kids like to find out the answer, they want to figure it out on their own. Inquiry grabs attention. Inventor Center is inquiry and hands on, same with the boxes. With PoP training, they say we shouldn't let you see the inside. I would die if I couldn't find out. Some people are ok with that, but the majority really want to know what is in the box. Everyone can open the box. Go group by group and share what the picture looks like with the box, and then open them together.

Have them open share their idea of what was in the box, and then actually open it.

How many people enjoyed? What kept it interesting?

Not knowing what was inside. It is something you could know, but you just didn't know. Cool to think about how to use the tools in different ways.

In the Inventor Center they will have different things they can use and different ways to use them. When you make an invention, you have a problem to solve. With this you are solving what is in the box.

Questioning Strategies

Everyone is going to get a sheet with different types of questions. Talk about the specific questions, but when we are facilitating in the exhibit, we will need questions to facilitate. We want them to think on their own. We aren't going to say to them, make a car with these wheels, this dowel, this , and this. We want them to come up with the answer on their own. Kids feel more proud when they come up with it on their own.

With the sheet we want to use more open ended questions. Not yes or no answers, but open ended. Want to open up a conversation. Want to open full conversations. Different types of questions.

Opening Questions

Used to invite participation, might be a yes or no. Do you want to try something cool? They provoke curiosity and help you get to know someone knew. Start off a conversation. Would you like to try this? Have you ever seen something like this before?

Exploration Questions

Encourage activity. Encourage experimentation, thoughtfulness, process prior knowledge, inference, discovery. What would happen if? What would happen if we added a weight, changed the wheels, etc.? Provokes curiosity, helps them come up with their own idea. If it doesn't work, good way to get around this problem. What could we try instead? What does that look like to you?

Making Meaning

Facilitate reflection, support inference, aid understanding, continue exploration. What do you think happened? Kids can come up with new ideas, and want to explore more. What if we changed….?

Break into group with the sheet. Has some examples you can use. Break into two small groups. Give you an activity that you will explain to someone else. When we do role-play, ask a lot of questions. You don't have to just ask questions in the exhibit, can be a free flow conversation, but we do want to ask a lot of questions in the exhibit.

Kara is the facilitator, Amy is the 7 year old boy in the exhibit. What Amy doesn't know is that Kara is trying to explain to her how to make a top, but only using questions so she makes one on her own. How can you use the plate. I can use it like a Frisbee. Have you seen anything before that spins like a Frisbee? Can we make something that spins on it's own on the table? Have you ever seen anything that looks like a spinning top? Is there anything you could use to make the plate like a spinning top? It's not working, how can you make it work better? Use two pencils. How does it work with two? Worse. How about using two plates? Can you change where the pencil is? What does it affect? The distance is the problem?

Amy wasn't saying a ton back to me. Not too much of a conversation, as soon as she started to build, she is focusing and the conversation lacked. Still using some of the recommendations. Never said "do this," used questions.

Split into two groups and other half in here. Give an activity and explain how the activity works. Then you are going to work with a partner, and explain to the partner how to do it using open ended questions. Take the sheet with you to write down some questions to use or circle some that will work.

Have them come back to the room and partner up. Have them work with their partner to have them facilitate their activity using questions.

How did questions work for you? You got to learn more about someone. Was patience an issue? Explaining is faster than asking questions. Takes a much longer time to get from point A to point B. Need to have patience to use questioning. Using a lot of patience with kids. Switch partners and explain their activity.

Have them put everything back in the bag.

What was different about this challenge?

More stuff to talk about. Less direction for the final result.

Wasn't a perfect end result. End result was pretty easy, lessen the friction between the block and the table. Easy to do. More similar to inventor center. Not every kid is going to want to make a car in the vehicle challenge. Don't want everyone to come up with the same thing. A little more similar to inventor center. Don't want kids to come up with the result we have, want them to come up with their own.

Anyone feel impatient?

The word "why." Everyone uses it. Don't use it too much with kids. It's a hard question to use with kids. You feel like they are there, but then you ask "why" and they freeze. Many people have this problem. They start to think of what, why, when, etc., and get overwhelmed. Will get the response of I don't know, and then expect an answer. Phrase it differently, use what, where, when, how, instead.

Next thing is a 15 minute break to get some snacks, water, and bathroom.

Appendix E

Post-Training

Inventor Center Portal to the Public Training Evaluation

(Pre-Training)

On a scale from one to ten, rate your comfort level in engaging with a person/group in a public space, such as a museum exhibit. One being the least comfortable, 10 being the most comfortable.

1	2	3	4	5	6	7	8	9	10
Least				Somewhat					Most

What challenges, if any do your foresee as you begin this training process? (e.g. shyness, communication, education, etc)

What do you hope to get out of this training? (e.g. confidence, information, professional development, etc)

Are you currently, or have you recently been, involved in scientific research? If yes, what is the topic of the research?

Inventor Center Portal to the Public Training Evaluation

(Mid-Training)

On a scale from one to ten, rate your comfort level in engaging with a person/group in a public space, such as a museum exhibit. One being the least comfortable, 10 being the most comfortable.

1 2 3 4 5 6 7 8 9 10

Least Somewhat Most

Do you feel that the training to this point has given you the tools to better communicate with museum visitors in an exhibit space? (Circle One)

Yes No

Why/Why Not?

Please place an X in the box of the training activity that you feel best fits the categories in the columns at the top (Most Useful, Least Useful, Most Enjoyable, Least Enjoyable).

	Volunteer Orientation	Education Training	Pleasure of Finding Things Out (Black Box)	Questioning Strategies	Discovering Invention	Personal Learning	Talk to Your Neighbor
Most Useful							
Least Useful							
Most Enjoyable							
Least Enjoyable							

What portion of the training do you feel we could have spent more time on?

Why?

What challenges, if any, do you foresee for yourself as you begin to implement the tools from training to your practical application day? (e.g. confidence, not enough training, missing info)

Inventor Center Portal to the Public Training Evaluation

(Post-Training)

On a scale from one to ten, rate your comfort level in engaging with a person/group in a public space, such as a museum exhibit. One being the least comfortable, 10 being the most comfortable.

1	2	3	4	5	6	7	8	9	10
Least				Somewhat					Most

Do you feel that the practical application experience has given you the additional tools to better communicate with museum visitors in the exhibit space? (Circle One)

Yes No

Why/Why Not?

What do you feel went well at your practical application day?

What do you feel could have been better at your practical application day?

Do you feel that you have the appropriate tools to engage with visitors in the Inventor Center without guidance? (Circle One)

Yes No

Why/Why Not?

What aspects of the training were most helpful in preparing for engaging visitors in the Inventor Center exhibit? (e.g. facilitation/communication practice, Inventor Center information, general training)

On a scale from 1 to 5, how do you feel about the following components of training?

Overall Organization and Structure

(Poor)1 2 3 4 5 (Excellent)

Overall Content

1 2 3 4 5

Materials and Resources Provided

1 2 3 4 5

Duration and Length of Training

1 2 3 4 5

Dates and Times of Trainings

1 2 3 4 5

Workshop Instructors

1 2 3 4 5

Would you be interested in attending similar trainings for other exhibits in the museum?

If so, which exhibit(s)?

Adventure Zone	Expedition Earth	Raceways
Light Here Light Now	At the Western Door	How Things Work
Native Peoples	Underground Railroad	Current Traveling Exhibit

Inventor Center Pre-Training

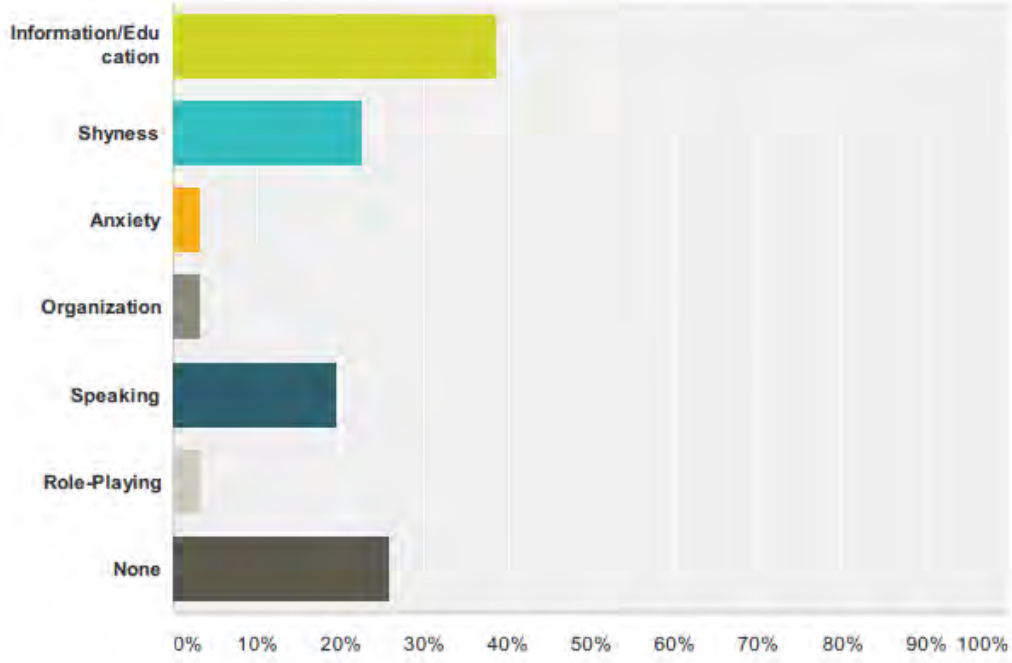
Q1 On a scale from one to ten, rate your comfort level in engaging with a person/group in a public space, such as a museum exhibit. One being the least comfortable, 10 being the most comfortable.

Answered: 31 Skipped: 0

	1	2	3	4	5	6	7	8	9	10	Total	Average Rating
Comfort Level	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	6.45% 2	22.58% 7	25.81% 8	16.13% 5	29.03% 9	31	8.39

Q2 What challenges, if any do your foresee as you begin this training process? (e.g. shyness, communication, education, etc)

Answered: 31 Skipped: 0



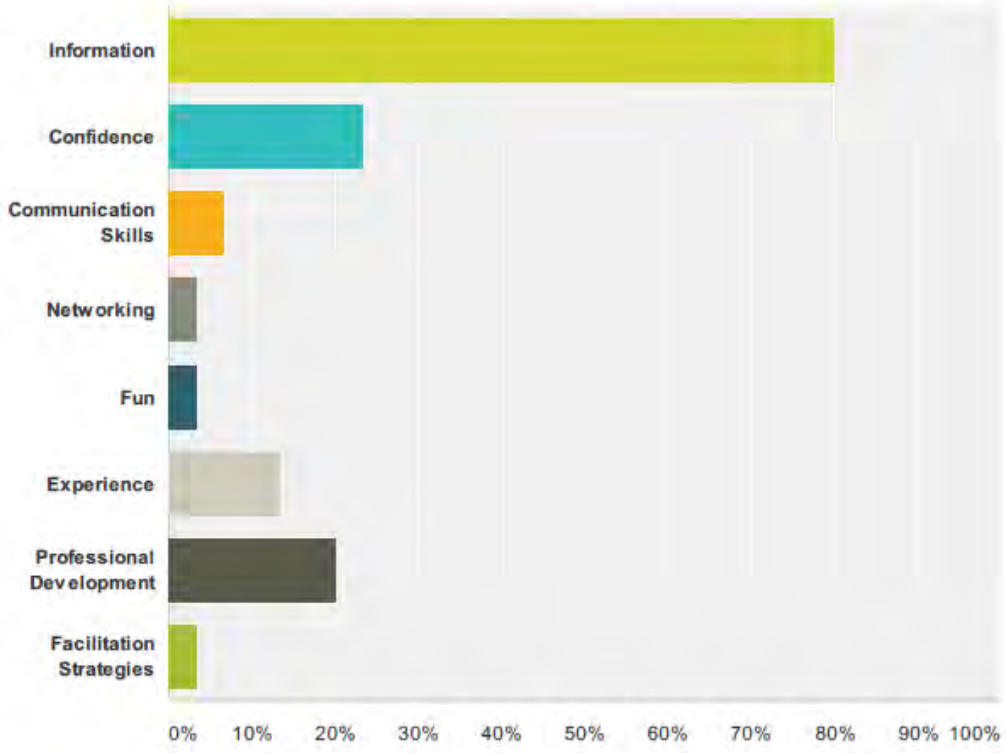
Answer Choices	Responses	
Information/Education	38.71%	12
Shyness	22.58%	7
Anxiety	3.23%	1
Organization	3.23%	1
Speaking	19.35%	6
Role-Playing	3.23%	1
None	25.81%	8
Total Respondents: 31		

#	Other (please specify)	Date
1	Some challenges I foresee are probably communication and maybe education.	6/30/2014 12:05 PM
2	Learning all the details/answers to questions such as where is the bathroom, extra materials, etc.	6/30/2014 12:00 PM
3	Have only been speaking English for less than 2 years, so not 100% confident to handle all situations.	6/30/2014 11:59 AM
4	Knowing enough about exhibits that I don't spend time in.	6/30/2014 11:58 AM
5	I am shy getting comfortable around new people, but warm up fast. I do not have a science background so I hope to learn a little more with what museum has to offer.	6/30/2014 11:56 AM

6	Lack of knowledge of the exhibits here.	6/30/2014 11:54 AM
7	There may be knowledge-based challenges, since I grew up in a different country and educational system.	6/30/2014 11:49 AM
8	Making sure that I have a complete understanding of the exhibit's material.	6/30/2014 11:48 AM
9	Education.	6/5/2014 11:17 AM
10	I haven't been concerned about anything.	6/5/2014 11:16 AM
11	Despite being comfortable in public, I'm awkward at role-playing.	6/5/2014 11:13 AM
12	Explaining and depicting something that is not concrete to children is challenging for me.	6/5/2014 11:12 AM
13	Ability to not trip over my own words.	6/5/2014 11:11 AM
14	Occasionally shyness and stuttering.	6/5/2014 11:10 AM
15	I see shyness, education, organization, and...	6/5/2014 11:09 AM
16	I stumble when I don't know/understand around 80% of the subject at hand.	6/5/2014 11:08 AM
17	Lack of assertion. Anxiety.	6/5/2014 11:07 AM
18	I am a little bit shy about approaching people, but when I am comfortable with how something works, the shyness usually goes away.	6/5/2014 11:05 AM
19	Learning what info is being shown.	6/5/2014 11:04 AM
20	Learning everything there is to know about being on the floor. I would hate to be asked a question and not have an answer. I know that this will probably happen a few times though.	6/5/2014 11:01 AM
21	My main challenge will be shyness, which I aim to work on.	6/5/2014 11:00 AM
22	My main concern is shyness.	6/5/2014 10:59 AM
23	Getting to know the material in the exhibit.	6/5/2014 10:56 AM

Q3 What do you hope to get out of this training? (e.g. confidence, information, professional development, etc)

Answered: 30 Skipped: 1



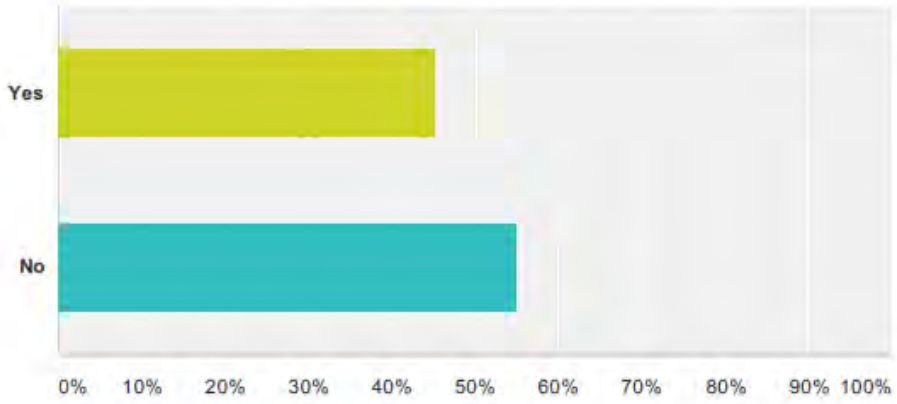
Answer Choices	Responses	
Information	80.00%	24
Confidence	23.33%	7
Communication Skills	6.67%	2
Networking	3.33%	1
Fun	3.33%	1
Experience	13.33%	4
Professional Development	20.00%	6
Facilitation Strategies	3.33%	1
Total Respondents: 30		

#	Other (please specify)	Date
1	A better understanding of the new exhibit. I would like to be able to give museum visitors the best experience possible.	6/30/2014 12:06 PM
2	I hope to gain more confidence with giving information to people about what we have to offer.	6/30/2014 12:05 PM

3	I hope to learn more about the exhibits at the museum and where everything is.	6/30/2014 12:04 PM
4	Education, confidence, development, inspiration.	6/30/2014 12:01 PM
5	I want to learn more about the exhibit.	6/30/2014 12:00 PM
6	Get myself familiar with what I will be working on as much as possible and practice a lot.	6/30/2014 11:59 AM
7	Information about the museums protocol for floor training.	6/30/2014 11:58 AM
8	More understanding of museum layout and how it runs. To be more comfortable and confident with others.	6/30/2014 11:56 AM
9	Information, structure of the museum, the aim on how the educational center functions.	6/30/2014 11:49 AM
10	More experience with actively engaging museum patrons. I'm used to working with collections.	6/30/2014 11:48 AM
11	Information, professional development.	6/5/2014 11:17 AM
12	Understanding of the new exhibit, further development of communication skills.	6/5/2014 11:16 AM
13	Info and strategies to facilitate engagement with new interactive exhibit.	6/5/2014 11:15 AM
14	Information and professional development.	6/5/2014 11:14 AM
15	Information, professional development.	6/5/2014 11:13 AM
16	I hope to learn new information and gain more experience on how to interact with visitors.	6/5/2014 11:12 AM
17	Confidence, info about the specific exhibit.	6/5/2014 11:11 AM
18	Information and professional development.	6/5/2014 11:10 AM
19	Information, personal development.	6/5/2014 11:09 AM
20	I hope to transfer my enthusiasm for discovery and learning to the group I'm demonstrating to. Also, to learn a bit about the inventing process.	6/5/2014 11:08 AM
21	Confidence, info.	6/5/2014 11:07 AM
22	Information on the program, development.	6/5/2014 11:05 AM
23	Learning what info is being shown.	6/5/2014 11:04 AM
24	No answer.	6/5/2014 11:03 AM
25	I like the networking aspect of this internship, and also as a way to get my feet wet with museum work. I really think this will be a fun experience, which made me the most excited.	6/5/2014 11:01 AM
26	I hope to gain a stronger confidence level, communication abilities, and experience, working in a museum setting.	6/5/2014 11:00 AM
27	I hope to get more information about what we'll be doing and some instruction to boost my confidence.	6/5/2014 10:59 AM
28	Information on the exhibit.	6/5/2014 10:56 AM

Q4 Are you currently, or have you recently been, involved in scientific research? If yes, what is the topic of the research?

Answered: 31 Skipped: 0



Answer Choices	Responses	
Yes	45.16%	14
No	54.84%	17
Total		31

#	Other (please specify)	Date
1	Yes, I have worked at a plasma physics lab in summer 2012, I worked at an optics company summer 2013, and spring 2014 I worked in a laser lab.	6/30/2014 12:04 PM
2	Yes, fracture study in onondaga formation watersheds (geology/hydro-geology).	6/30/2014 12:00 PM
3	Currently researching and building tools for dentists.	6/30/2014 11:58 AM
4	Yes. My field of research is immunology. I work in a cancer radiation lab and study different immunotherapies that could help enhance the patient's response to radiation.	6/30/2014 11:54 AM
5	No, I am a freshman in Engineering. However, I worked to program a robot and manufactured/designed an RC car. In my first bachelor's degree I did research papers on cognitive psychology, particularly perception.	6/30/2014 11:49 AM
6	Just historical research focusing on early America as well as certain subjects in the history of Islam.	6/30/2014 11:48 AM
7	Biology, dentistry.	6/5/2014 11:15 AM
8	Yes, development of scientific methods, development of blood tests.	6/5/2014 11:14 AM
9	No, I have not been involved in any professional scientific research.	6/5/2014 11:12 AM
10	Yes. Computational chemistry.	6/5/2014 11:11 AM
11	None to my knowledge.	6/5/2014 11:10 AM
12	Nope ☹	6/5/2014 11:08 AM
13	Yes. Separation of single-walled carbon nanotubes.	6/5/2014 11:07 AM
14	Yes, I'm a graduate student in neuroscience.	6/5/2014 11:05 AM
15	Yes, diumal patterns of bottlenose dolphins.	6/5/2014 11:04 AM

16	Electrical.	6/5/2014 11:03 AM
17	Not particularly, but I did do an exhibit creation project in my museum studies class.	6/5/2014 11:01 AM
18	In the upcoming academic year I will be involved in primate research.	6/5/2014 11:00 AM
19	Yes. This past year I was part of a research group working to design assistive writing technology for people with parkinson's. This summer I'm doing research on the sustainability of batteries and electronics.	6/5/2014 10:59 AM
20	Seminar research; survey paper on the viability of Streptomyces bacteria as a fuel source. No original research was done.	6/5/2014 10:56 AM

Inventor Center Mid-Training

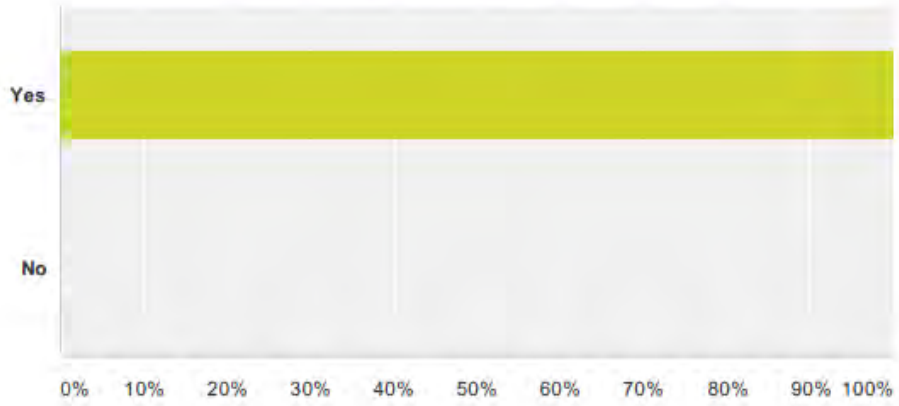
Q1 On a scale from one to ten, rate your comfort level in engaging with a person/group in a public space, such as a museum exhibit. One being the least comfortable, 10 being the most comfortable.

Answered: 31 Skipped: 0

	1	2	3	4	5	6	7	8	9	10	Total	Average Rating
Comfort Level	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	16.13% 5	25.81% 8	29.03% 9	29.03% 9	31	8.71

Q2 Do you feel that the training to this point has given you the tools to better communicate with museum visitors in an exhibit space?

Answered: 31 Skipped: 0



Answer Choices	Responses	
Yes	100.00%	31
No	0.00%	0
Total		31

Q3 Why/Why Not?

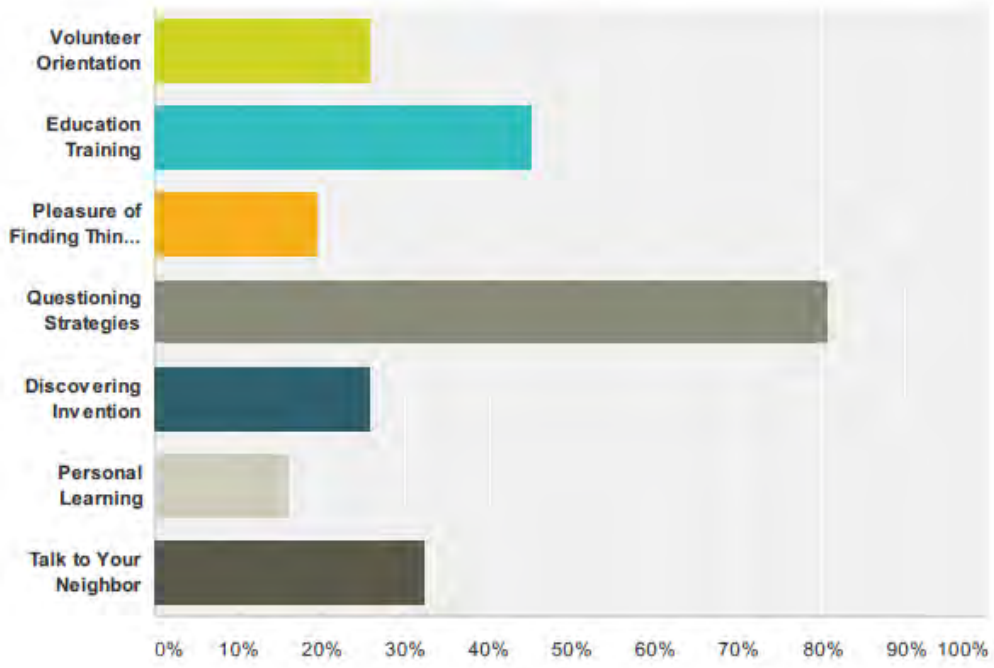
Answered: 31 Skipped: 0

#	Responses	Date
1	I know how to handle certain situations much better.	6/30/2014 12:30 PM
2	The prompts were good.	6/30/2014 12:28 PM
3	I feel like I am better prepared to interact with different kinds of people or even large groups. Before this I still wasn't super confident, but the exercised we did today helped a lot.	6/30/2014 12:27 PM
4	Yes, it made me more aware of the different types of visitors and was good practice.	6/30/2014 12:25 PM
5	Made me expect what to see when I volunteer.	6/30/2014 12:24 PM
6	I now have better questioning strategies and a better idea of the situations I will encounter and different ways to respond to such situations.	6/30/2014 12:23 PM
7	I have lots of experience talking to visitors and feel comfortable.	6/30/2014 12:21 PM
8	Learned some useful techniques to get visitors involved and how to use questions to inspire thinking.	6/30/2014 12:19 PM
9	I feel I can appropriately approach and engage both kids and parents in exhibits.	6/30/2014 12:17 PM
10	I learned a lot more about engaging visitors of all ages and backgrounds. Which made me feel more comfortable. I really liked getting to know the museum, layout, and exhibits as well as now they worked.	6/30/2014 12:16 PM
11	It has familiarized me with the space/different exhibits and made me confident in my ability to facilitate the learning of visitors.	6/30/2014 12:13 PM
12	It covers all important aspects for communication with others and social awareness/responsibility.	6/30/2014 12:11 PM
13	I've never practiced explaining a concept to someone purely through the use of questions, so this training was useful.	6/30/2014 12:10 PM
14	It allowed me to understand the exhibit better and what ideas we are trying to communicate to our patrons.	6/5/2014 3:00 PM
15	The questioning strategies was helpful in particular the note about using "why" in moderation. That's something I can definitely apply to floor demonstrations.	6/5/2014 2:58 PM
16	Role playing open-ended questions improves with practice.	6/5/2014 2:56 PM
17	Helped me to better understand how to use questions to stimulate interest in visitors.	6/5/2014 2:54 PM
18	It's always good to be reminded that visitors will come in knowing different levels of science.	6/5/2014 2:53 PM
19	We have been given the key/essential words to use and questions to ask in the most right way for different age groups.	6/5/2014 2:51 PM
20	Model questions were quite helpful. Talk to your neighbor was great for communication, as was the black box. The model balloon copter having only one "right" answer, didn't fit the theme of the training.	6/5/2014 2:49 PM
21	Because it helps me to understand the different people's way of learning. And how to more effectively interact with people on different levels of thinking, and different personalities.	6/5/2014 2:47 PM
22	I now know how to somewhat better talk with certain people.	6/5/2014 2:46 PM
23	I think the part about engaging visitors by asking questions instead of just instructing them was very helpful. I already do ask visitors questions to get them thinking, but how I will ask them questions so they solve the problem.	6/5/2014 2:43 PM
24	Better understanding of the exhibit and job of facilitating.	6/5/2014 2:41 PM
25	Learning how to questions was useful. It's a different form of communication so it's important to practice and learn how to do it.	6/5/2014 2:39 PM

26	It was a great overview of what to expect in the Inventor Center.	6/5/2014 2:37 PM
27	Because we are always learning new skills.	6/5/2014 2:35 PM
28	It helped me learn how to instruct through questions, something I wasn't 100 percent comfortable with before.	6/5/2014 2:33 PM
29	Yes, the questions to facilitate gave me ideas to start conversations. Talk to your neighbor helped get my prepared to except a variety of people. I like learning the big picture plan of the Inventor Center.	6/5/2014 2:31 PM
30	We were provided with a lot of instruction and hypothetic scenerios that really forced me to think about what it would be like to facilitate in an exhibit full of visitors.	6/5/2014 2:29 PM
31	Useful strategies were given during training that could be helpful while communicating with visitors.	6/5/2014 2:26 PM

Q4 What training activity did you find to be the most useful?

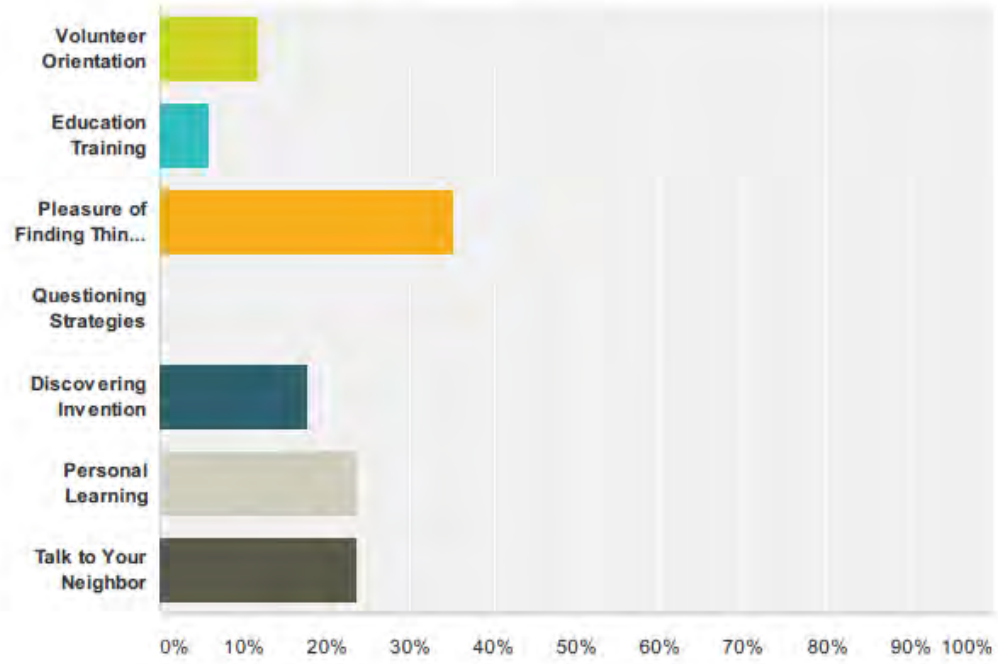
Answered: 31 Skipped: 0



Answer Choices	Responses	
Volunteer Orientation	25.81%	8
Education Training	45.16%	14
Pleasure of Finding Things Out	19.35%	6
Questioning Strategies	80.65%	25
Discovering Invention	25.81%	8
Personal Learning	16.13%	5
Talk to Your Neighbor	32.26%	10
Total Respondents: 31		

Q5 What part of the training did you find least useful?

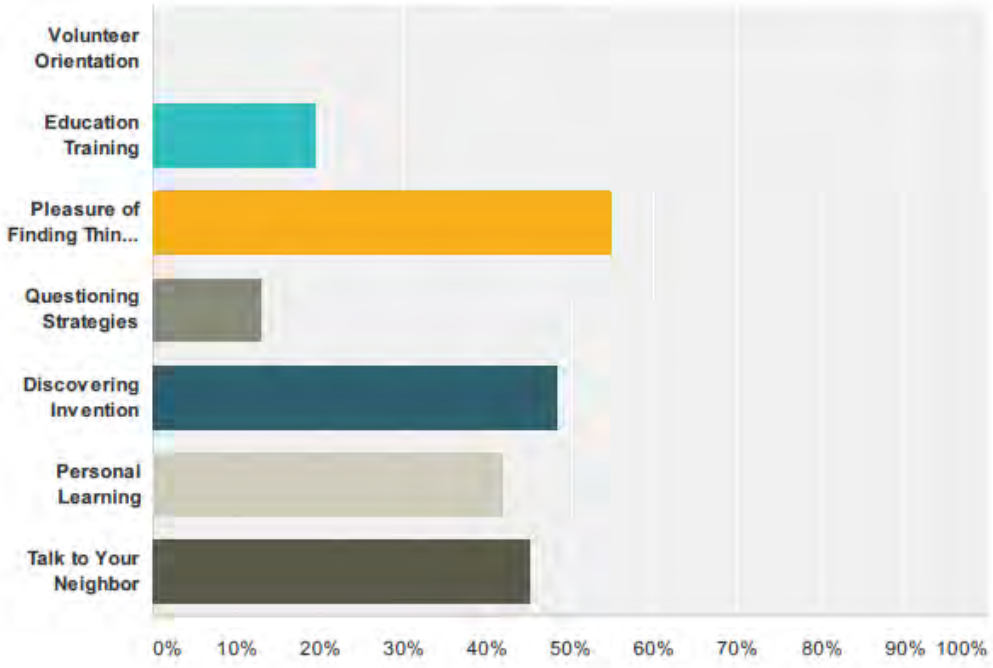
Answered: 17 Skipped: 14



Answer Choices	Responses	
Volunteer Orientation	11.76%	2
Education Training	5.88%	1
Pleasure of Finding Things Out	35.29%	6
Questioning Strategies	0.00%	0
Discovering Invention	17.65%	3
Personal Learning	23.53%	4
Talk to Your Neighbor	23.53%	4
Total Respondents: 17		

Q6 What part of the training did you find most enjoyable?

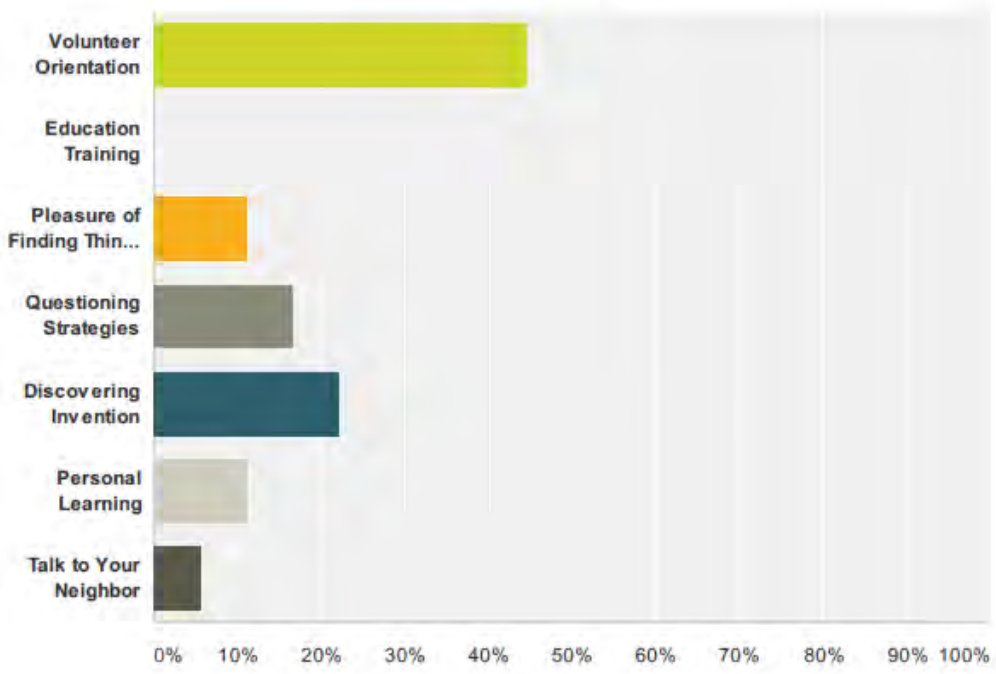
Answered: 31 Skipped: 0



Answer Choices	Responses	
Volunteer Orientation	0.00%	0
Education Training	19.35%	6
Pleasure of Finding Things Out	54.84%	17
Questioning Strategies	12.90%	4
Discovering Invention	48.39%	15
Personal Learning	41.94%	13
Talk to Your Neighbor	45.16%	14
Total Respondents: 31		

Q7 What part of the training did you find least enjoyable?

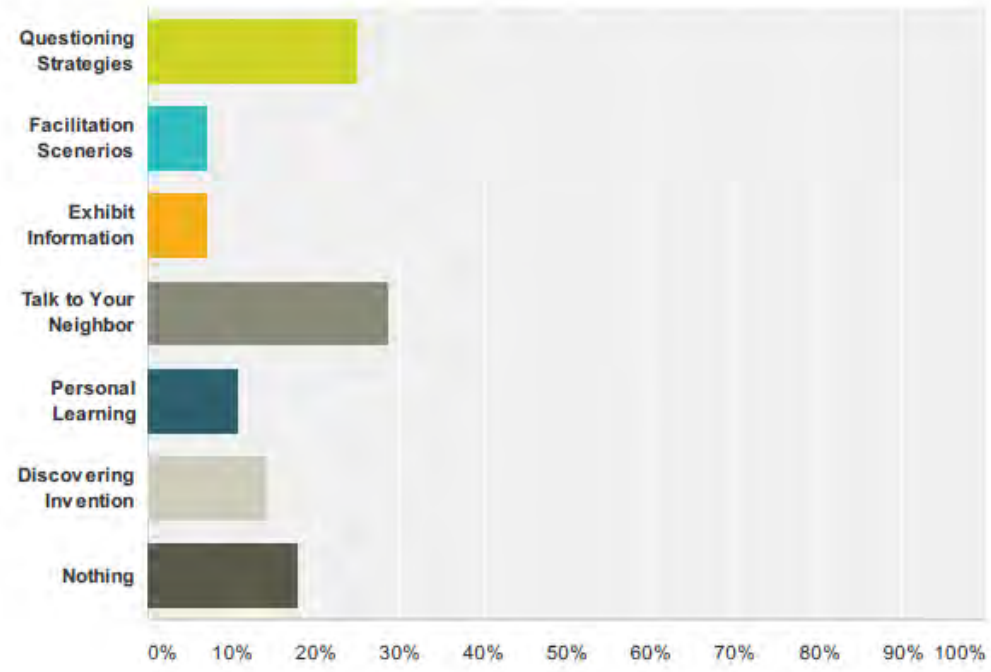
Answered: 18 Skipped: 13



Answer Choices	Responses	
Volunteer Orientation	44.44%	8
Education Training	0.00%	0
Pleasure of Finding Things Out	11.11%	2
Questioning Strategies	16.67%	3
Discovering Invention	22.22%	4
Personal Learning	11.11%	2
Talk to Your Neighbor	5.56%	1
Total Respondents: 18		

Q8 What portion of the training do you feel we could have spent more time on?

Answered: 28 Skipped: 3



Answer Choices	Responses	
Questioning Strategies	25.00%	7
Facilitation Scenerios	7.14%	2
Exhibit Information	7.14%	2
Talk to Your Neighbor	28.57%	8
Personal Learning	10.71%	3
Discovering Invention	14.29%	4
Nothing	17.86%	5
Total Respondents: 28		

#	Other (please specify)	Date
1	Taking inventions apart.	6/30/2014 12:30 PM
2	Going through different people.	6/30/2014 12:28 PM
3	Education Training	6/30/2014 12:23 PM
4	Learning how to talk to visitors is always important.	6/30/2014 12:21 PM
5	Questioning strategies and talk to your neighbor for practice.	6/30/2014 12:17 PM
6	I feel like we practiced too much with talking to visitors became redundant, but I thought it was very useful. Loved it other than that.	6/30/2014 12:16 PM

7	Maybe questioning strategies, but think everything was given enough time (or more than enough). Talk to your neighbor could have been shortened in half, to still convey the same ideas. We were a little bored and used the time to socialize. Maybe do 1-2 cards instead of more than four.	6/30/2014 12:13 PM
8	Practicing forming new questions for different situations.	6/30/2014 12:10 PM
9	I think it was distributed very well. A little more time on talking to your neighbor might have been fun but non-essential.	6/5/2014 2:58 PM
10	Confused about what the personal training was. (Meant personal learning.)	6/5/2014 2:56 PM
11	Sharing our inventions.	6/5/2014 2:53 PM
12	The meeting and presentation.	6/5/2014 2:51 PM
13	Talk to Your Neighbor, but that was an understandable time crunch.	6/5/2014 2:49 PM
14	Discovering Invention and Personal Learning	6/5/2014 2:47 PM
15	I felt that everything was evenly timed.	6/5/2014 2:46 PM
16	Personal Learning and Talk to Your Neighbor	6/5/2014 2:41 PM
17	The more practice talking to people/engaging the better!	6/5/2014 2:39 PM
18	Talk to Your Neighbor, it was fun to role play and practice how you will engage visitors.	6/5/2014 2:37 PM
19	I'm not sure. Maybe with learning about the space, but that's hard to do before it's built.	6/5/2014 2:33 PM
20	I feel like we could have spent more time going through scenarios of what it will be like when we are actually in the exhibit.	6/5/2014 2:29 PM

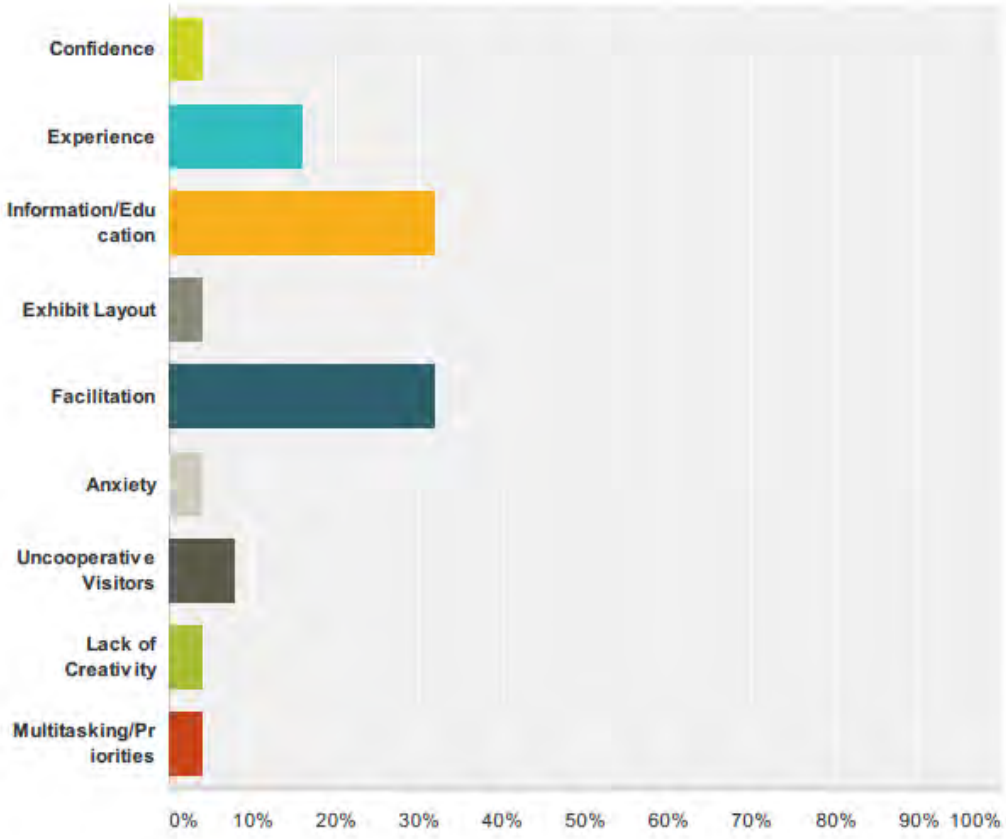
Q9 Why?

Answered: 29 Skipped: 2

#	Responses	Date
1	I'm not sure what we are supposed to throw out or reuse.	6/30/2014 12:30 PM
2	Matching different people is the quickest part.	6/30/2014 12:28 PM
3	It was something I never really talked about before and I would've liked more time to work with it.	6/30/2014 12:27 PM
4	I think that was the most "real" experience that we had during the training.	6/30/2014 12:25 PM
5	Everything was self-explanatory.	6/30/2014 12:24 PM
6	It's a lot of information to learn and understand.	6/30/2014 12:23 PM
7	I felt comfortable, but some of the people I worked with appeared to be uncomfortable.	6/30/2014 12:21 PM
8	Useful to know how to interact with visitors.	6/30/2014 12:19 PM
9	For practice.	6/30/2014 12:17 PM
10	I feel like we practiced too much with talking to visitors became redundant, but I thought it was very useful. Loved it other than that.	6/30/2014 12:16 PM
11	As I mentioned above, it's a new concept for me.	6/30/2014 12:10 PM
12	Because I felt as though I learned a lot, but could have learned more.	6/5/2014 3:00 PM
13	The role-playing aspect was fun.	6/5/2014 2:58 PM
14	The training will be way better on the floor when it becomes available.	6/5/2014 2:56 PM
15	Would have helped to practice the different scenarios.	6/5/2014 2:54 PM
16	I wanted to see what fun things my co-workers created.	6/5/2014 2:53 PM
17	There were a lot of questions to ask since we do not get to see the actual thing.	6/5/2014 2:51 PM
18	It was great communication practice, and quite enjoyable.	6/5/2014 2:49 PM
19	Because I believe it is very important to truly get people to think more about what they are thinking and use their creative mindset.	6/5/2014 2:47 PM
20	That's just how I felt.	6/5/2014 2:46 PM
21	Learning about basic invention and getting hands on experience is important for engaging visitors.	6/5/2014 2:43 PM
22	Rushed through due to time.	6/5/2014 2:41 PM
23	Practicing the communication techniques that you'll use with museum guests is a good way to become skilled at it.	6/5/2014 2:39 PM
24	It was fun to role play and practice how you will engage visitors.	6/5/2014 2:37 PM
25	This is where you adjust your presentation to the visitor.	6/5/2014 2:35 PM
26	Because the best way to learn is to experience.	6/5/2014 2:33 PM
27	No answer.	6/5/2014 2:31 PM
28	This is what is really applicable to the work we will be doing.	6/5/2014 2:29 PM
29	Relates better to what we might do in Inventor Center than making our own inventions does.	6/5/2014 2:26 PM

Q10 What challenges, if any, do you foresee for yourself as you begin to implement the tools from training to your practical application day? (e.g. confidence, not enough training, missing info)

Answered: 25 Skipped: 6



Answer Choices	Responses	
Confidence	4.00%	1
Experience	16.00%	4
Information/Education	32.00%	8
Exhibit Layout	4.00%	1
Facilitation	32.00%	8
Anxiety	4.00%	1
Uncooperative Visitors	8.00%	2
Lack of Creativity	4.00%	1
Multitasking/Priorities	4.00%	1
Total Respondents: 25		

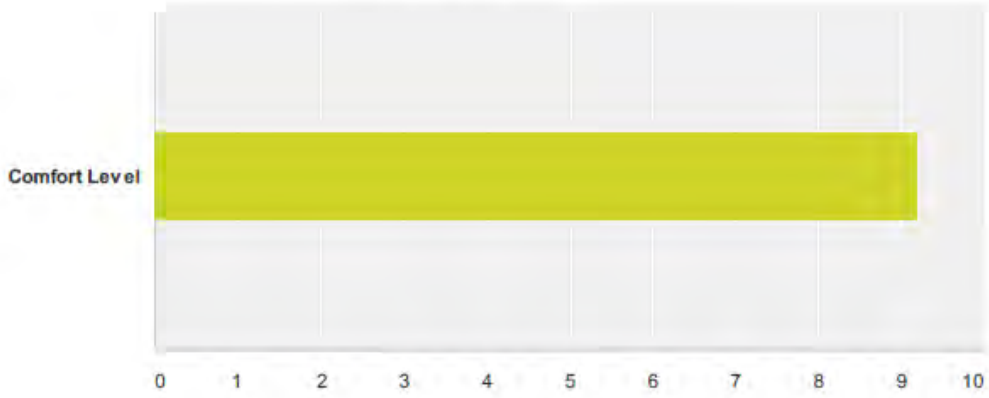
Inventor Center Mid-Training

#	Other (please specify)	Date
1	Really all of the different questioning strategies could be difficult.	6/30/2014 12:30 PM
2	Visitors being difficult to engage.	6/30/2014 12:28 PM
3	I think just knowing what questions to ask different age groups.	6/30/2014 12:27 PM
4	None that I can think of.	6/30/2014 12:25 PM
5	Able to make a person interested.	6/30/2014 12:24 PM
6	I think the hardest part will be learning how to balance the needs of all the visitors in the exhibit when lots of people are there.	6/30/2014 12:23 PM
7	Any challenges I come across I will address the best way I see fit.	6/30/2014 12:21 PM
8	Not knowing all the terminologies or the cultural aspect of the exhibits.	6/30/2014 12:19 PM
9	Just taking a while to learn how to get around the museum.	6/30/2014 12:16 PM
10	Just the learning gap of becoming oriented with where all the exhibits/bathrooms are, etc. I'm so excited to start!	6/30/2014 12:13 PM
11	Missing knowledge about exhibit or local history.	6/30/2014 12:11 PM
12	Again, explaining a concept through questions.	6/30/2014 12:10 PM
13	Only missing info. Not knowing something a patron asks can damper their experience.	6/5/2014 3:00 PM
14	I think I may have difficulty distributing my focus and attention evenly when the exhibit is busy. I'm nervous about the exhibit getting very messy very fast.	6/5/2014 2:58 PM
15	It will be awkward at first being new and exciting.	6/5/2014 2:56 PM
16	I will need to actually be on the floor working in the exhibit before I can really answer this well.	6/5/2014 2:54 PM
17	Politely dealing with patrons who won't follow instructions that are beyond my control. (i.e. not being able to take their inventions home)	6/5/2014 2:53 PM
18	Lack of creativity or where to begin with is a challenge.	6/5/2014 2:51 PM
19	Competitive kids who don't want to share the "secret" of their invention. Otherwise, nothing.	6/5/2014 2:49 PM
20	How to interact with different people.	6/5/2014 2:47 PM
21	Possibly giving wrong information.	6/5/2014 2:46 PM
22	Not enough of a basic background in making common things, like a catapult or moving object.	6/5/2014 2:43 PM
23	Lack of assertion, anxiety.	6/5/2014 2:41 PM
24	Engaging with people of all ages at the right level.	6/5/2014 2:39 PM
25	Just knowing the actual layout (where stuff is). It will be great to actually see the space and the actual materials being used to invent.	6/5/2014 2:37 PM
26	None.	6/5/2014 2:35 PM
27	Missing info in some of the exhibits. Engaging the public in some of the exhibit that are less hands-on.	6/5/2014 2:33 PM
28	Not having any actual experience can make starting my volunteer experience intimidating, but I feel like today was very useful.	6/5/2014 2:31 PM
29	I think my main issue will be confidence.	6/5/2014 2:29 PM
30	None	6/5/2014 2:26 PM

Inventor Center Post-Training

Q1 On a scale from one to ten, rate your comfort level in engaging with a person/group in a public space, such as a museum exhibit. One being the least comfortable, 10 being the most comfortable.

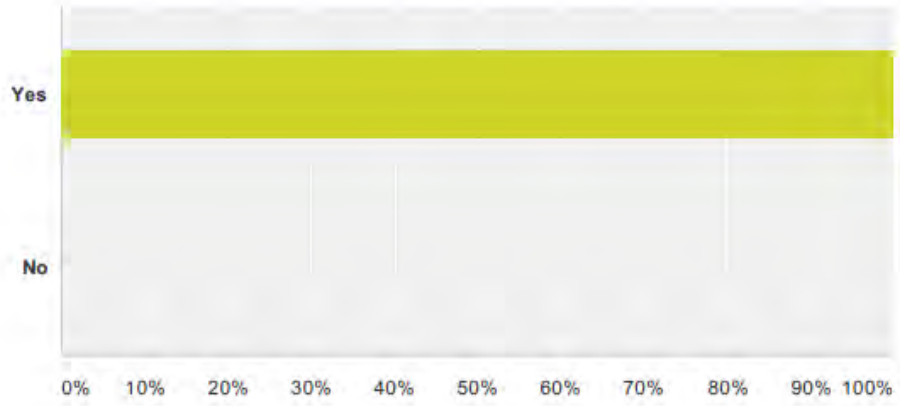
Answered: 11 Skipped: 1



	1	2	3	4	5	6	7	8	9	10	Total	Average Rating
Comfort Level	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	0.00% 0	9.09% 1	18.18% 2	18.18% 2	54.55% 6	11	9.18

Q2 Do you feel that the practical application experience has given you the additional tools to better communicate with museum visitors in the exhibit space? (Circle One)

Answered: 12 Skipped: 0



Answer Choices	Responses	
Yes	100.00%	12
No	0.00%	0
Total		12

Q3 Why/Why Not?

Answered: 12 Skipped: 0

#	Responses	Date
1	The experience helps become more secure with what the Inventor Center will actually be like.	6/30/2014 12:55 PM
2	I was able to put the skills I learned at previous trainings to use while having someone there to help if I got stuck.	6/30/2014 12:54 PM
3	To actually do that was very much different from role playing. Got a real sense of volunteer's work.	6/30/2014 12:50 PM
4	It allowed me to try and ask questions to other volunteers about interacting in the exhibit.	6/30/2014 12:47 PM
5	The more practice, the more comfortable I feel interacting with visitors.	6/30/2014 12:45 PM
6	I have practiced how to ask and not tell when it comes to figuring out a problem.	6/30/2014 12:43 PM
7	It gave me more experience with different scenarios, like a visitor who is interested vs. one that isn't.	6/30/2014 12:41 PM
8	Working directly with exhibit materials and the visitors in that space gave me confidence to work in the area and a better understanding of the way the exhibit worked.	6/30/2014 12:39 PM
9	Being able to see that facilitating without directly instruction works and the kids enjoy the learning has helped me feel comfortable and know my job's role. Seeing how to approach the kids when they first walk in was helpful.	6/30/2014 12:37 PM
10	I got to see how the inventor center actually runs and how people were interacting with the exhibit.	6/30/2014 12:35 PM
11	Getting actually put in the space was probably the best way to put what we've learned to the test.	6/5/2014 3:18 PM
12	Got to see specific situations that could arise during facilitation.	6/5/2014 3:17 PM

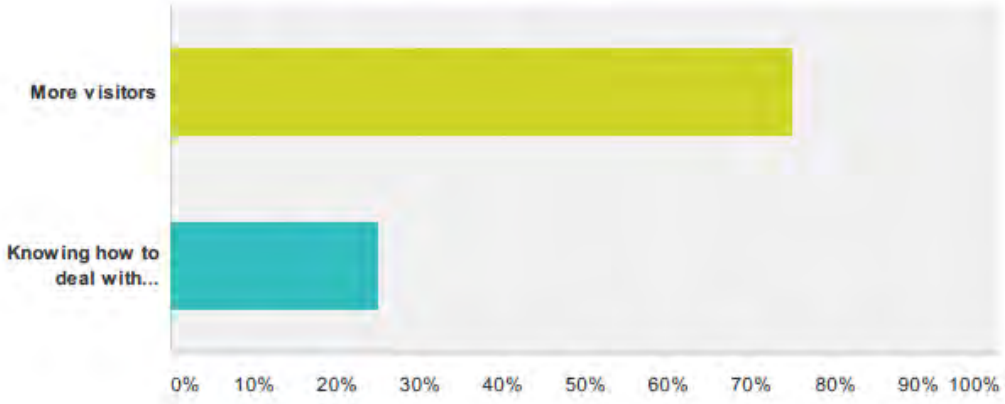
Q4 What do you feel went well at your practical application day?

Answered: 12 Skipped: 0

#	Responses	Date
1	Everything went smoothly. We were able to manage large groups and everyone seemed happy with their experience.	6/30/2014 12:55 PM
2	I feel the person I was shadowing did a good job of getting me involved, but also showing me what I should be doing.	6/30/2014 12:54 PM
3	Explored the area and tried to see how things work from the visitor's perspective.	6/30/2014 12:50 PM
4	We had a lot of interested visitors to try and engage in different ways.	6/30/2014 12:47 PM
5	Communication between the volunteers and visitors. Lots of advice and helpful encouragement.	6/30/2014 12:45 PM
6	Everyone learned and had fun.	6/30/2014 12:43 PM
7	Some guests really enjoyed developing their designs.	6/30/2014 12:41 PM
8	The visitors were very friendly and receptive, all the visitors I talked with stayed within the space modifying their invention for well over half an hour. It was a slow day so mess was minimal and easily taken care of.	6/30/2014 12:39 PM
9	The kids only built at the build table and nowhere else. They seemed excited when they figured out why something didn't work or how to improve. The kids knew what to do without much direction.	6/30/2014 12:37 PM
10	I felt confident engaging visitors and people responded positively to the exhibit.	6/30/2014 12:35 PM
11	Knowing how to talk to people, how to ask questions, learning more of the science behind the exhibit.	6/5/2014 3:18 PM
12	Learning ways to approach families.	6/5/2014 3:17 PM

Q5 What do you feel could have been better at your practical application day?

Answered: 4 Skipped: 8

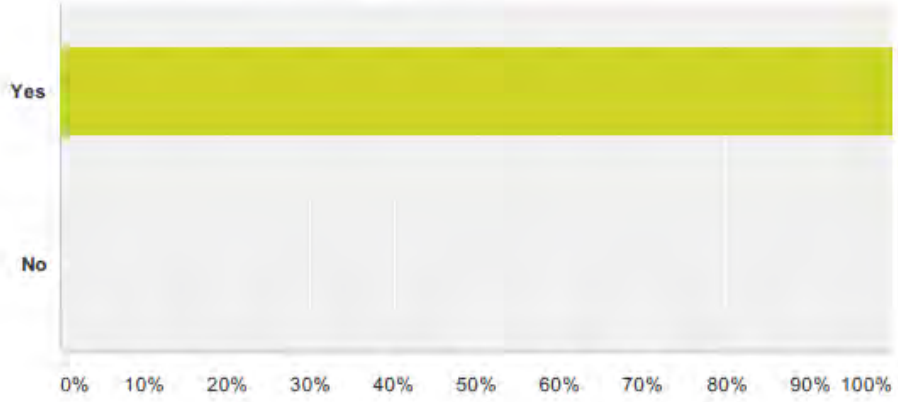


Answer Choices	Responses	
More visitors	75.00%	3
Knowing how to deal with "Problem" Visitors	25.00%	1
Total Respondents: 4		

#	Other (please specify)	Date
1	I don't think things could have gone much better.	6/30/2014 12:55 PM
2	I wish there had been more visitors during my observation time so I could have experienced a wider variety.	6/30/2014 12:54 PM
3	To better engage with kids.	6/30/2014 12:50 PM
4	Nothing, went well.	6/30/2014 12:47 PM
5	There were a lot of kids at certain points which was overwhelming, but I think that was due to location and that it was a prototype.	6/30/2014 12:45 PM
6	Nothing, it was great.	6/30/2014 12:43 PM
7	Explaining how to use the tools better, like how to use protractors, or which part of the hub faced front.	6/30/2014 12:41 PM
8	The learning stations were largely overlooked – which was due to a desire to figure things out themselves- but could have saved some frustration. I think as I spend more time in the exhibit I will develop better strategies for guiding visitors through problem solving.	6/30/2014 12:39 PM
9	There could have been more people in general, more cleaning up after yourself. About half the people initially made turbines spin the wrong way, which could have been avoided if they looked at testing before building.	6/30/2014 12:37 PM
10	I probably could have been more engaging, but I think it will come with more time spent in the exhibit.	6/30/2014 12:35 PM
11	Given more tools for how to deal with "problem" visitors.	6/5/2014 3:18 PM

Q6 Do you feel that you have the appropriate tools to engage with visitors in the Inventor Center without guidance? (Circle One)

Answered: 12 Skipped: 0



Answer Choices	Responses	
Yes	**100.00%**	12
No	**0.00%**	0
Total		**12**

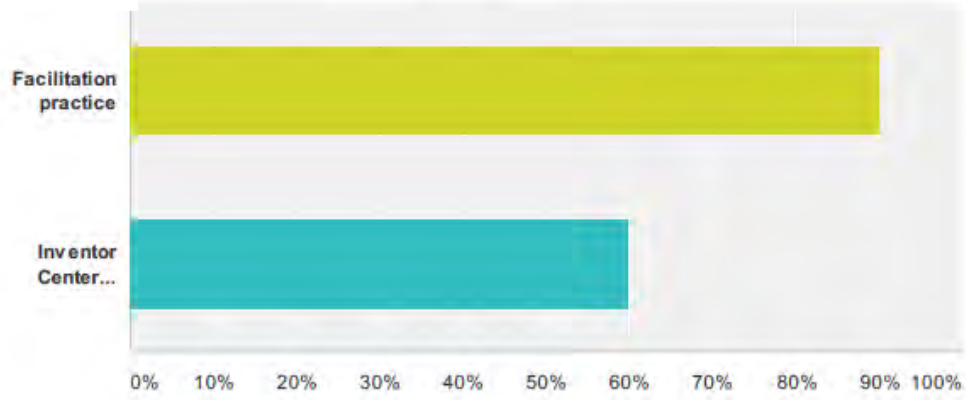
Q7 Why/Why Not?

Answered: 10 Skipped: 2

#	Responses	Date
1	I know where the materials are, how to interact with guests, and what is expected.	6/30/2014 12:54 PM
2	The electronic study guide was helpful.	6/30/2014 12:50 PM
3	It was all there.	6/30/2014 12:45 PM
4	Yes, I feel training has been adequate and has gotten my excited to interact.	6/30/2014 12:43 PM
5	I better understand how people approach the challenge.	6/30/2014 12:41 PM
6	Today was slow and I was able to talk to visitors on an in-depth and superficial basis.	6/30/2014 12:39 PM
7	Because I watched other people, I can copy. But I haven't seen all scenerios still and I think I have a good tool on how to approach ones I haven't seen.	6/30/2014 12:37 PM
8	Actually being in the exhibit and observing other people engage visitors.	6/30/2014 12:35 PM
9	Because I essentially just did a test run.	6/5/2014 3:18 PM
10	Through the training and shadowing I feel I do have the tools.	6/5/2014 3:17 PM

Q8 What aspects of the training were most helpful in preparing for engaging visitors in the Inventor Center exhibit? (e.g. facilitation/communication practice, Inventor Center information, general training)

Answered: 10 Skipped: 2



Answer Choices	Responses	
Facilitation practice	90.00%	9
Inventor Center information	60.00%	6
Total Respondents: 10		

#	Other (please specify)	Date
1	Inventor Center information and training in general.	6/30/2014 12:55 PM
2	Inventor center information, facilitation/communication, general.	6/30/2014 12:54 PM
3	Actually interacting with visitors and helping them.	6/30/2014 12:50 PM
4	Doing it with other volunteers shadowing and having volunteers to learn from that engage visitors in different ways.	6/30/2014 12:47 PM
5	More just how to talk to kids and how to get them involved and excited.	6/30/2014 12:45 PM
6	The exercises we did with a partner to try and get them to complete a task without telling them how and mostly asking questions.	6/30/2014 12:43 PM
7	Facilitation was the most practical because it can clearly show any flaws in the exhibit's design.	6/30/2014 12:41 PM
8	The initial training on guiding with questions and avoiding "why" as well as the hands on practice were most beneficial.	6/30/2014 12:39 PM
9	Shadowing was the most practical experience for preparing to engage. Inventor Center information has made me excited to want to do it.	6/30/2014 12:37 PM
10	Actually being in the exhibit and observing the people engage visitors.	6/30/2014 12:35 PM
11	Communication practice and Inventor Center information.	6/5/2014 3:18 PM
12	Communication practice and Inventor Center info.	6/5/2014 3:17 PM

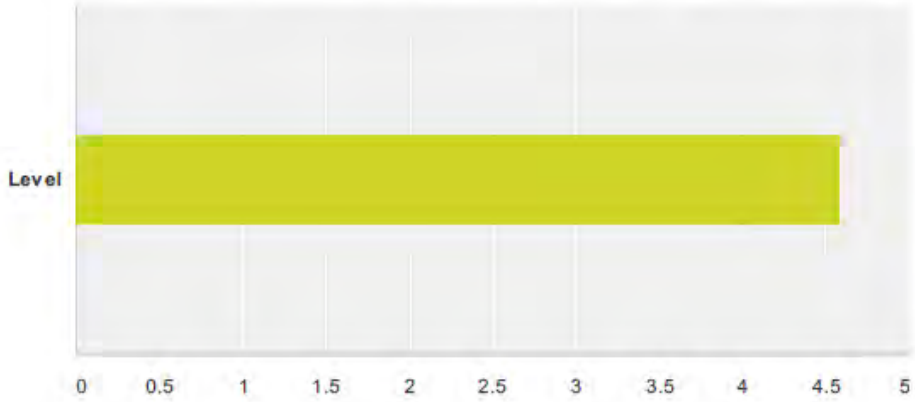
Q9 On a scale from 1 to 5, 1 being poor and 5 being excellent, how do you feel about the overall organization and structure of training?

Answered: 12 Skipped: 0

	1	2	3	4	5	Total	Average Rating
Level	0.00% 0	0.00% 0	8.33% 1	33.33% 4	58.33% 7	12	4.50

Q10 On a scale from 1 to 5, 1 being poor and 5 being excellent, how do you feel about the overall content of training?

Answered: 12 Skipped: 0



	1	2	3	4	5	Total	Average Rating
Level	0.00% 0	0.00% 0	8.33% 1	25.00% 3	66.67% 8	12	4.58

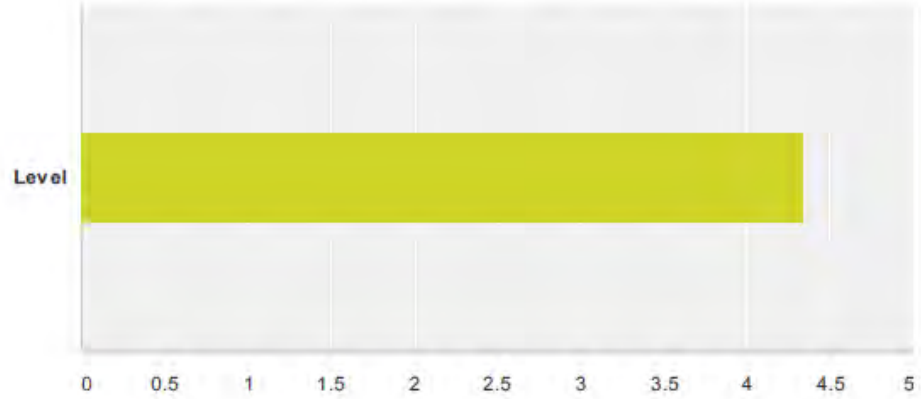
Q11 On a scale from 1 to 5, 1 being poor and 5 being excellent, how do you feel about the materials and resources provided at training?

Answered: 12 Skipped: 0

	1	2	3	4	5	Total	Average Rating
Level	0.00% 0	0.00% 0	16.67% 2	0.00% 0	83.33% 10	12	4.67

Q12 On a scale from 1 to 5, 1 being poor and 5 being excellent, how do you feel about the duration and length of training?

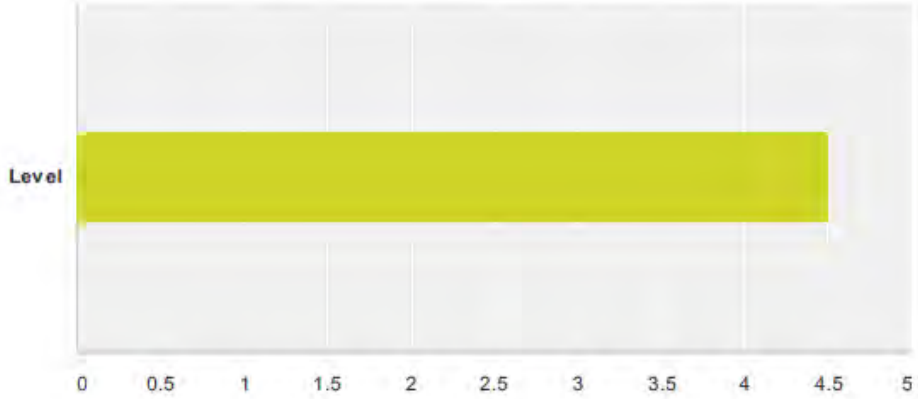
Answered: 12 Skipped: 0



	1	2	3	4	5	Total	Average Rating
Level	0.00% 0	0.00% 0	16.67% 2	33.33% 4	50.00% 6	12	4.33

Q13 On a scale from 1 to 5, 1 being poor and 5 being excellent, how do you feel about the dates and times of training?

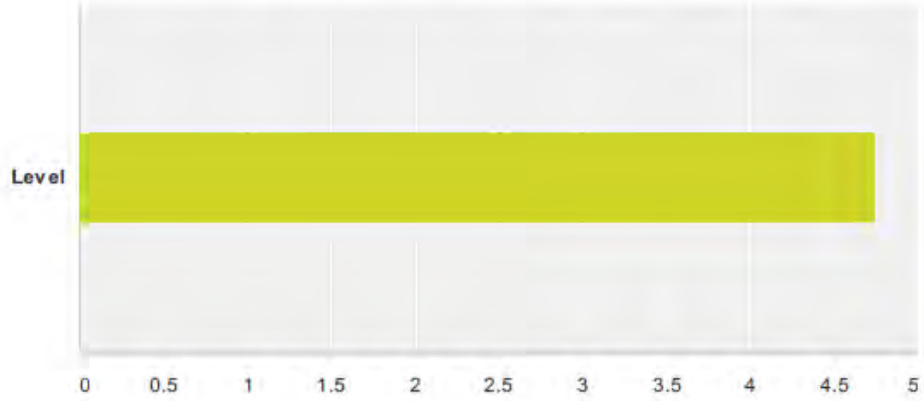
Answered: 12 Skipped: 0



	1	2	3	4	5	Total	Average Rating
Level	0.00% 0	0.00% 0	16.67% 2	16.67% 2	66.67% 8	12	4.50

Q14 On a scale from 1 to 5, 1 being poor and 5 being excellent, how do you feel about the workshop instructors?

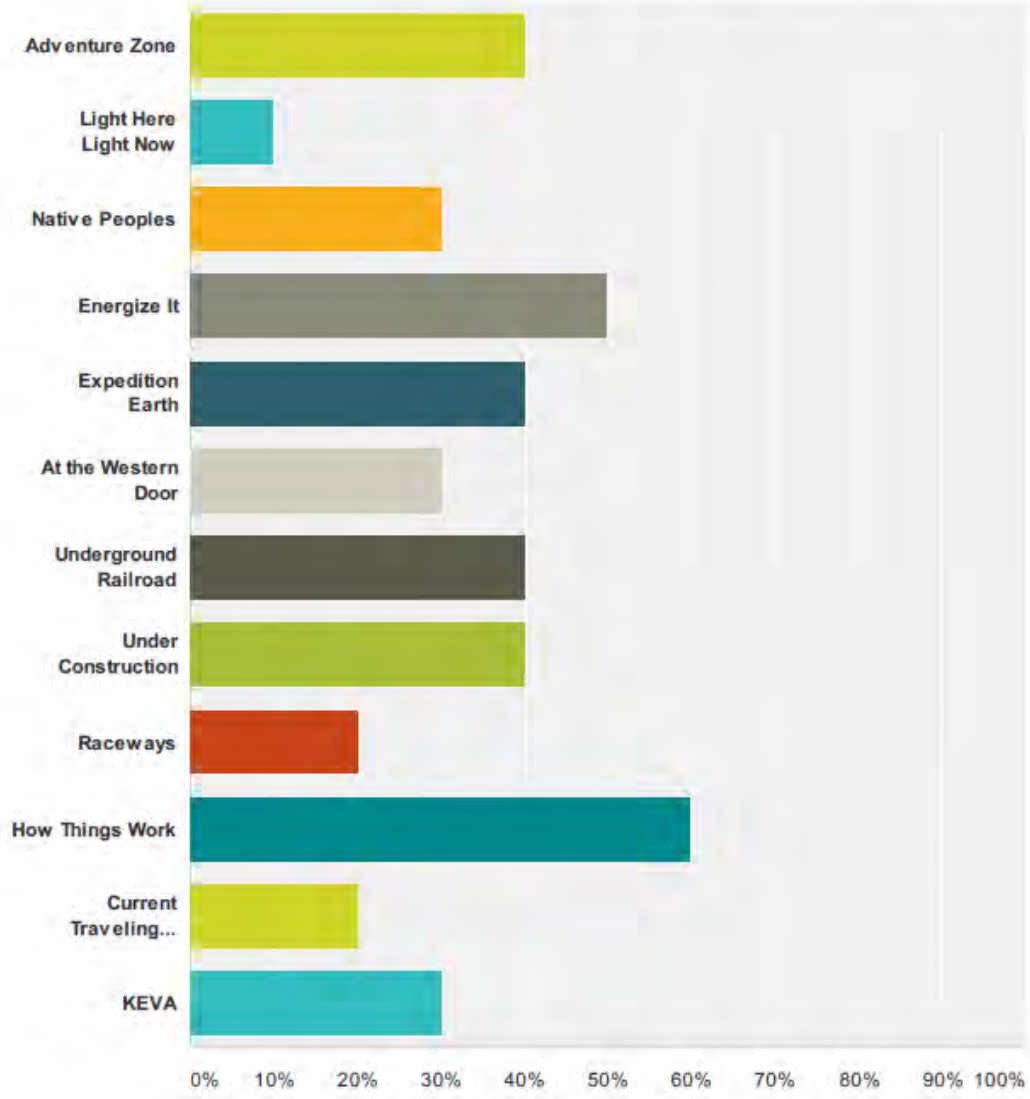
Answered: 12 Skipped: 0



	1	2	3	4	5	Total	Average Rating
Level	0.00% 0	0.00% 0	0.00% 0	25.00% 3	75.00% 9	12	4.75

Q15 Would you be interested in attending similar trainings for other exhibits in the museum? If so, which exhibit(s)?

Answered: 10 Skipped: 2



Answer Choices	Responses	
Adventure Zone	40.00%	4
Light Here Light Now	10.00%	1
Native Peoples	30.00%	3
Energize It	50.00%	5
Expedition Earth	40.00%	4
At the Western Door	30.00%	3

Underground Railroad	40.00%	4
Under Construction	40.00%	4
Raceways	20.00%	2
How Things Work	60.00%	6
Current Traveling Exhibit	20.00%	2
KEVA	30.00%	3
Total Respondents: 10		