

WHAT IS THE YOUNG INVENTORS' SHOWCASE AT THE CHILDREN'S MUSEUM OF HOUSTON?



What skills will my students gain from participating in the Young Inventors' Showcase?

- Discerning Opportunities - being able to identify needs and initiate new ideas
- Productive Thinking - creative thought and brainstorming with fluency (many ideas), flexibility (varied ideas), originality (unusual ideas), and elaboration (adding to the ideas)
- Decision Making - Evaluating data, developing many alternate solutions, analyzing the possibilities, choosing the best solution, and justifying said choice
- Communication - being able to absorb and express thoughts and ideas verbally and non-verbally, including word fluency (describing things), expressional fluency (describing feelings/emotions), and associational fluency (describing how things relate to each other or are similarly related)
- Planning - Organizing to arrive at a specific objective, including: setting goals; determining materials and equipment; developing the process and determining steps needed to complete the task; and, predicting possible problems or impediments to the work being planned.
- Implementing - executing a plan, evaluating the results of said plan, and making modifications to the plan to adjust for the results

How can my students participate in Young Inventors' Showcase?

- Invite students to independently participate
- Invite students to participate in a small group of 2-3 individuals
- Invite students to participate as a class
- Invite students to participate as a school

What if I want my students to participate as a class or school initiative?

- Plan time for the invention process.
- Host an Inventors' Showcase for your class or school.
- Send the application of the showcase winners to the Children's Museum postmarked by April 16th.
- Qualifiers will be notified by May 3rd.
- Attend the Children's Museum showcase on Saturday, May 22nd.

How do I plan the Invention Process?

- Week 1- Brainstorm and Research Ideas
- Week 2- Make a Plan
- Week 3- Build your Model
- Week 4 & 5- Test and Revise your Model
- Week 6- Finalize your Invention and Competition Materials

Before getting started, make sure each student has an Inventor's Log.

To create your own Inventor's Log:

- ▣ Use a composition book or notebook
- ▣ Include the following information:
 - Name of project
 - Date
 - Notes
 - Diagrams
 - Inventor's Signature
 - Witnessed by _____ on _____
- ▣ Keep records of all work done on invention; this can be used as proof of your original ideas.

Brainstorm and Research Ideas

- Identify a need, want, or problem
 - ▣ All inventions have one thing in common, they are created to solve a need, want, or problem.
 - ▣ Make a list of problems, needs, or wants in your Inventor's log.
 - ▣ Pick your favorite one.
- Brainstorm solutions
 - ▣ Make a list of possible solutions.
 - ▣ Write them down in your Inventor's Log.
 - ▣ Don't worry about how you would make the solution- just brainstorm.
- Select a solution
 - ▣ Look over your list and evaluate each solution to identify the best one.
 - ▣ Think about your ability levels, access to equipment, and the time you have when deciding your choice.
 - ▣ Give your idea a name.

What if none of the solutions you brainstormed are within your abilities?

- Brainstorm more solutions, maybe with people who can help you come up with ideas

OR

- Go back to your list of problems and needs and choose a different one.

Make a Plan

- Do research
 - ▣ Research is an important part of the invention process.
 - ▣ Two key things you need to research:
 - Has anyone already made your invention?
 - If you make an invention that is already patented, it is called “infringement.”
 - Search the website of the United States Patent and Trademarks Office (www.uspto.gov).
 - Important information needed to better understand your problem and help you plan your invention.
 - Make a list of questions you have and topics related to your invention in your Inventor’s Log.

Make a Plan

□ Apply the Research

- Write a list of important facts you learned in your Inventor's Log.
- Consider each of these questions as you plan your invention:
 - What kind of materials should you use?
 - Are there any hazards you hadn't considered?
 - Is there an easier way to build your model?
 - Has anyone already tried and failed? What did you learn from them?
 - Was anyone successful in a related topic? Can you use their findings to help you?
 - Are there any important ideas to keep in mind as you design your invention?

Build your Model

- Find a place to set up a “workshop”
 - ▣ A safe place where you can keep all your materials and tools used to build and test your invention.
- Draw a sketch or drawing
 - ▣ Review your research and draw what you want your invention to look like in your Inventor’s Log.
 - ▣ Don’t make it complicated.
 - ▣ Clearly illustrates your idea and it is easy to understand.
- Make a list of materials and tools
 - ▣ Materials don’t have to be new- search your house, garage, garage sales, or friends and relatives.
 - ▣ Be creative if you can’t if a certain material, replace it with another material.

Build your Model

- Decide on a type of model
 - Conceptual Models
 - Not all models of inventions are meant to be working models.
 - Some models are intended as a way of illustrating an idea.
 - Often done when it is too large or expensive to do in full-scale
 - Or it is too expensive or unsafe.
 - Functional Models
 - Many inventions models are working versions of the invention.
 - These models are early versions, or prototypes of the final invention.
 - Used to test the design and the materials used in order to refine the invention before the final product is built.
- Think about which model will be best for your invention.
- As you build, you may think of other ideas for the design; be sure to write them down in your Inventor's Log.

Test and Revise your Model

- Most important step in inventing:
 - ▣ learn what you need to do to make your model work.
 - ▣ this step is a cycle between building and testing while developing your final invention.
 - ▣ each test you conduct tells you more changes that you need to make.
- Make sure to record all your data in your Inventor's Log along with any changes you choose to make to your invention.
- Get stuck? Ask friends and family for help.

Test and Revise your Model

- Decide on a type of testing
 - ▣ Conceptual Testing
 - When testing conceptual models, the goal is to see if others understand your invention and how it is supposed to work.
 - Ask friends and family for help:
 - look at the model
 - Suggest changes to better illustrate your invention's purpose
 - Modify model
 - ▣ Functional Testing
 - When conducting functional tests, you want to make sure that your invention does what you intended and that it does it consistently.
 - What to test?
 - Materials
 - Function
 - Consistency
- Perseverance, determination and tenacity are important qualities of an inventor!

Finalize your Invention and Competition Materials

- Review all your tests and observations, check over all the modifications, and make sure everything makes sense.
- Add final touches to make your invention your own:
 - ▣ Add decorations or color
 - ▣ Give it a final name
 - ▣ Put together your presentation for the competition.

How do my students participate in the showcase at the Children's Museum?

- All participants to be considered for the showcase at the museum must fill out an application postmarked no later than April 16.
- Items required:
 - ▣ Completed application- signed and dated
 - ▣ A photo of your invention- make sure the photo clearly portrays your invention
 - ▣ A completed and signed media release form
- Qualifiers of the Children's Museum showcase will be notified by May 3rd.
- Participants must be present on Saturday, May 22 with their invention and display materials.

What are the judging Criteria for the Children's Museum showcase?

- Inventions will be judged on a point system of 100 possible points that are weighted to six topics:
 - Original creative thought and provides evidence of no similar product on the market (worth 35 points).
 - Practical value (worth 25 points).
 - Inventor's Log book accurately reflects the process through to the end result (worth 15 points).
 - Enthusiastic about his/her invention (worth 10 points).
 - Well designed and constructed, made wise and creative use of available materials (worth 10 points).
 - Promoted the invention with eye-catching and creative materials (worth 5 points).
- Inventors can earn fractions of the allotted points for each criteria.
- Each invention is judged at least 3 times.
- Inventors must be at their invention during judging times.
- Please see showcase guidelines for more information.

What are the guidelines for display at the Children's Museum showcase?

- ❑ Before planning your display, carefully review the rules for project displays.
- ❑ Make your display a creative visual summary of your entire project.
- ❑ How you display your invention— color scheme, graphics, pictures, lettering, etc. – are all important because your display will serve as a “silent” salesperson for your project.
- ❑ For more information about Display Rules, Safety Regulations, and Photograph Display Restrictions, see showcase guidelines.

What do I expect the Day of the Competition?

□ Sample Schedule

□ Participant registration/invention setup	8:30-9:30am
□ Judging	9:30 am-12:30pm
□ Lunch and break	12:30-2:30pm
□ Final Judging	1:00-2:00pm
□ Presentation of prizes	2:30-3:00pm
□ Breakdown of inventions	3:00-3:30pm

- You will receive a final agenda the day of the showcase.
- Kid's Café in the museum will be open or you may bring your lunch.
- Do not plan on going out for lunch; if the judges need to talk to you during the final judging, you will risk not being in place.

What resources are available?

□ Books

- ▣ *The Kids' Invention Book* by Arlene Erlbach
- ▣ *So You Want to Be an Inventor?* by Judith St. George and David Small
- ▣ *Kids Inventing! A Handbook for Young Inventors* by Susan Casey
- ▣ *Brainstorm!: The Stories of Twenty American Kid Inventors* by Tom Tucker

What resources are available?

- Websites:
 - Invent Now: www.invent.org/index.asp
 - United States Patent and Trademark Office (for Kids): www.uspto.gov/go/kids
 - USPTO (for adults): www.uspto.gov
 - Invention Dimension at Lemelson-MIT: <http://web.mit.edu/invent/invent-main.html>

- For more book and website resources, see showcase guidelines.

What resources are available?

- Young Inventors' Showcase Coordinator:
 - Mindalyn Galli
713-535-7286
mgalli@cmhouston.org
- Application, guidelines, and flyers for YIS:
www.cmhouston.org/younginventorsshowcase
- Judges for school-wide showcases:
 - Send information about showcase dates, times, and needs to Mindalyn Galli by December 4th, 2009
 - CMH will provide judges and volunteers to help you with your showcase

