

## **Supporting Our Inventors**

All of the children in the community are encouraged to create inventions. Students will be supported in developing their invention ideas when possible during school, but the individual nature of the invention process means that most work will take place at home. Managing this type of learning requires a great deal of student effort and adult coaching. My aim is that the invention process will be a rewarding experience for each student. I value the crucial role that parents play in developing positive attitudes about learning and hope that you will find a balanced way into this role and enjoy the process. Your comments, questions, and suggestions are always welcome. Below, I have borrowed some wise words from the former science teacher, Tony Hughes, about invention projects.

“A child must get the idea, make the invention, try it out, improve it, get others to try it out, and so on, until they feel that it is done. Students may work by themselves or as a member of a team of no more than four students. I’m hoping that you’ll not only allow your young inventor to use the workshop or garage, but that you’ll be interested in joining in to help them flesh out their ideas or consider a new perspective. Encourage good note keeping and clean up at the end of each work session. Please feel free to remind students that inventing is a process and it takes time.

Though it’s difficult to reach complete agreement, we’re going to work under the assumption that an invention is something that solves a problem or improves an existing design. It could be a device or gadget that makes it easier to do something. It could be a process; using an old device for a new purpose can be an invention. For our purposes, it could also be a game, toy, or puzzle. If your child comes

home saying “I want to make an invention. I’m not sure what to do.” You can make suggestions and offer to help, but remember he or she needs to own the invention. Even when children find a problem to work on, remind them that it’s a good idea to stay aware of other problems because they may discover something better to work on. Also, the first idea for how to solve a problem might not be the best one. Remind your child that invention is a process and it takes time. If they get stuck and have trouble thinking of a solution at all, it’s fine to offer suggestions. Offer several solutions, if possible, and let your young inventor test and choose the best. The important distinction is that the child is in charge of the invention. You are a helper, coach, and sometimes a cheerleader. Once a child finds a solution, any steps along the way to developing it should be described in pictures, diagrams, and words in a journal. Photographs really help communicate ideas too. This kind of record keeping can be very important to the inventing process.

### **Making a Model**

For some invention ideas, it will not be possible to build a full, working model because it costs too much or it would be too big to be displayed at the invention show. Display space is limited to around two square feet. I also don’t expect this project to cost a lot of money, and if it becomes clear that it will, then you and I need to say, “No-you need to work on something that is less expensive.” In that case, the inventor can make a smaller, scale model. The more they can make it work like the full-size version, the better. If it is impossible to make a working model, then a representative model can be made. Sometimes the technology required does exist, but it is beyond what a student can do. Even if it doesn’t work,

we can see what it would look like. If it is clear that it would work, then it's fine. However, the inventions that work best are those that can be made, tried out, and developed. Making a model might involve the need to do some research with perhaps a trip to the library, a search on the internet, or a meeting with an expert. It might involve a trip to a hardware store or other supplier (a fabric store, lumber yard, dollar store, hobby shop, etc.). After the invention has been developed, it should be tested by others. Somewhere at this stage of development the invention should be given a name. When the right name has been chosen, the whole thing takes on a life of its own. Refining and editing do not come naturally to a lot of children, but the whole thing becomes more real when it is named. Testing should continue until the inventor feels that all the problems have been worked out and the invention is as good as possible.

Please download the Science Show Submission Form from the science blog to accompany your child's project. I realize that what I'm suggesting may take a big commitment of time and energy, but if you can support your child I think you'll be glad you did. A former parent commented, "I don't care if she makes a great invention. This process has been absolutely magical. Night after night she has dragged me to the workshop to work on her ideas. Thanks for helping me see my child in a new and wonderful way." Feel free to call or e-mail me with any questions and thanks for helping us grow young inventors!

Thanks!  
Kate  
kates@miquon.org