



Children's Museum of Houston

Pre/Post Classroom Activities

Post-Visit Activity 5: Your Invention

Introduction

Activity 5 allows students to invent a solution to their problem. They will be challenged to independently follow the invention process to make a new idea come to life.

Share with students:

Lots of kids have great ideas. In fact, kids seem to be full of awesome ideas! However, very few kids (or adults for that matter) take the time and effort to bring their idea to life. Not many people really experiment with their ideas and try them out. This is the difference between an inventor (a scientist) and anyone else. In this invention lesson, you are going to have a chance to bring one of your great ideas to life; really try it out and see if it works!

4th Grade TEKS Objectives

(Language Arts)

19.A Generate ideas and plans for writing by using such prewriting strategies as brainstorming, graphic organizers, notes, and logs (4-8)

(Science)

2.A Plan and implement descriptive investigations including asking well-defined questions, formulating testable hypotheses, and selecting and using equipment and technology

2.B Collect information by observing and measuring

2.C Analyze and interpret information to construct reasonable explanations from direct and indirect evidence

2.D Communicate valid conclusions

4.A Collect and analyze information using tools including calculators, safety goggles, microscopes, cameras, sound recorders, computers, hand lenses, rulers, thermometers, meter sticks, timing devices, balances, and compasses

4.B Demonstrate that repeated investigations may increase the reliability of results.

Vocabulary

Brainstorming- a process of spontaneous thinking used by an individual or by a group of people to generate numerous alternative ideas while deferring judgment.

Persistent- persisting, esp. in spite of opposition, obstacles, discouragement, etc.

Creativity/Creative Thinking- the ability to transcend traditional ideas, rules, patterns, relationships, or the like, and to create meaningful new ideas, forms, methods, interpretations, etc.; originality, progressiveness, or imagination.

Materials

- Pre-made packets from Activity 4
(Staple one copy of Blackline Master F to 5 double-sided copies of Blackline Master D to make one packet per student)
- Blackline Master G (one per student)
- Various recycled materials to build with such as cups, paper, string, large and small cardboard tubes, small containers, blocks or boxes, etc.

Set up

- Arrange “work stations” on the floor or tables around the room. You may want to number the stations to help students find their assigned area more easily.
- Place all building materials in one area of the classroom so that students can conveniently borrow or return building supplies as they need it.

Procedure

Distribute pre-made copies of Blackline Masters F and D to students. Remind students that, like in the previous activities, they will be writing down all of their plans and ideas in their Inventor’s Log. They will be following the instructions on the Your Invention (Blackline Master G) and documenting their progress in their Inventor’s Log packet. Point out that again, they are required to write down all of their work and ideas during each step. Their log will be used to validate their efforts. Require students to obtain your signature after completion of each step of the invention process. When students have finalized their invention, award each student with a patent by filling in the last signature and school name for the patent office. Remind them to have fun and be creative! There are no ideas too silly. In fact, sometimes those silly ideas lead a good inventor to the perfect solution!

Evaluation

Student work will be evaluated after completion of each step of the invention process. Upon evaluation, the teacher should guide or re-teach any part of the invention process that may appear unclear or unrealistic (nonfunctional) to the student.

Resources

- Ostfeld, K. (2008). 21st Annual Young Inventors Showcase of Houston at the Children’s Museum of Houston Young Inventors Guidelines. Retrieved July 22, 2009 from <http://www.cmhouston.org/inventors-showcase/>.
- Erlbach, A. (1997). *The Kids’ Invention Book*. Minneapolis, Learner Publication Company.

Interview Participant 1 _____ Date _____

Interview Participant 2 _____ Date _____

Interview Participant 3 _____ Date _____

Interview Participant 4 _____ Date _____



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Inventor's Log

Contributed by _____ Date _____

Diagrams:



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Your Invention

1. Get an Idea



Brainstorm Ideas

Now that you have a problem to solve or improve, write down in your inventor's log all possible solutions or ideas you have about the problem. Be completely open-minded and don't be afraid to make a mistake. Try looking at things in a different way. Be creative! Then, select your best idea for a functional model.

Teacher signature _____

2. Make a Plan



Write and draw everything you would need to make this plan work. Try to think of all the details, including building supplies. The materials you choose should be accessible and not harmful or dangerous in any way. Also write down any questions or potential problems that may arise. Don't forget to label and date all of your notes and drawings.

Teacher signature _____

3. Build a Model

Use the supplies provided in class or any other materials approved by your teacher and construct your model in your assigned work area.



Note any changes or ideas you make while building.

Teacher signature _____

4. Test the Model

Test it out! You may have to build, re-build and test several times. Remember to try your product out many times in many different situations to be sure that it is reliable. This will also allow you to see if the product needs any improvements.



Keep jotting down your ideas and changes until you solve the problem.

Teacher signature _____

5. Finalize Your Invention

Make any final touches on your invention that may help to improve the efficiency or appearance of your product.



Give your invention a name.

Teacher signature _____

Congratulations! Your invention has proven to be unique and useful. You have been awarded a patent from the _____ Patent and Trademark office.
