YOUNG INVENTORS' PROGRAM® ANNUAL CELEBRATION
March, 28, 2015
MERRIMACK VALLEY HIGH SCHOOL, PENACOOK, NH
8AM TO 2PM

I am excited to report that Fidelity Investments will be sponsoring the Young Inventors' Program® Annual Celebration again this year. As part of their Fidelity Cares campaign, Fidelity employees volunteer at local schools, as well as the state event. Please e-mail me phampton@aas-world.org if you would like a Fidelity volunteer to participate at your school, if you haven't done so already.

Tentative schedule (subject to change):

8:00am - 9:00am	*Registration*
8:30am	*Sponsor/Specialty Judge Preview Begins**
9:00am - 10:00am	*Judging Session #1*
10:00am - 11:00am	*Judging Session #2*
11:00am - Noon	*Judging Session #3*
Noon - 1:00pm	*Lunch*
1:00pm - 2:00pm	*Award Ceremony*

*Beginning this year, anyone who sponsors an award will be given the opportunity to view the inventions prior to judging, as time permits.

Important Highlights/Changes:

- Our annual celebration will be on **March 28, 2015**
- Final day to register online is: **March 6, 2015** (no paper entries will be allowed)
- Online registration opens **December 1, 2014**

- **CT Invention Convention** - Helen Charov, the Director of the CT Invention Convention, has invited up to 8 students to compete for prizes in the May 2, 2015 event in CT.
  The Academy will pay for expenses (up to $300 per family) for one night's lodging, gas/tolls and dinner. The CT Invention Convention has waived its registration fee this year. Online registration will now include a question regarding the student's availability to compete in the CT Invention Convention at UConn in Storrs, CT. This, of course, would have to be confirmed by a parent. We do not want to select a student who may not be able to attend the CT Invention Convention. This will be a firm commitment to attend if their child is chosen. We may only select 4 students or 6 students, depending upon the amount of interest.
  Visit www.ctinventionconvention.org and for CT rules: www.ctinventionconvention.org/students-and-their-families/make-invention-successful/rules-for-invention-convention

- **2015 Challenge - Inventions for the School Classroom**
  Many things can be seen in the classroom and they all were invented by someone. See how Post-it Notes were invented: wonderopolis.org/wonder/who-invented-sticky-notes
  See book bag invention: www.ehow.com/about_6976468_invention-book-bag.html

- **New Awards - see descriptions under Sponsored Specialty Awards**
  - Caring for Your Pet Award (under the general category)
  - Microsoft Technology Award (under general category)
  - Library & Information Services Award (under the general category)

- **Online registration** – Online registration will be available December 1st. www.aas-world.org/YIP/index.html - 2015 YIP Student/School Registration
  Additional questions will be asked when you register, i.e. new category selection and questions that may assist the academy applying for grants.

- **Only 2 students will be allowed per team.** This is in line with many of the invention and science events throughout the country. (In the past, we have allowed up to 4 students)

- **Display Board** - This year we **encourage** students to use a display board for their project - 36" tall x 48" wide (24", with 12" panels = 48" wide) - again, this is standard with many other events. This year is a transitional period and not a requirement. However, in 2016, a display board will be required for participation at the annual celebration. We will try to assist you in funding this in 2016 if you find that this is a hardship. A sample display board can be found on www.aas-world.org/YIP/index.html

- **Invention Journals** - Invention logs will continue to be a requirement.

- All forms, instructions, inventor's journal, and tips can be found on the following web page:
  www.aas-world.org/YIP/index.html

Pamela Hampton, Program Director
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Bringing invention to your classroom

You might ask, "With everything else I have to teach, why take the time for inventing?"

Teaching invention in the classroom encourages students to think through problems, analyze, ask questions and support decisions. We are confronted every day with problems demanding solutions, in the workplace and in school. How those problems are solved is often determined by how well we all develop critical-thinking and problem-solving skills.

Inventing provides a unique opportunity for learners of all ages to synthesize and apply knowledge and skills to real-life. The process places a strong emphasis on defining an actual problem, formulating an original solution, developing a product, and sharing the results or products with others. A unit on invention challenges students to become actively engaged in the learning process. The invention process provides an opportunity for all students to participate and be successful. All children can identify problems in their homes or neighborhoods. Students quickly discover the fun in providing practical solutions!

A unit on inventive thinking and creating an original invention is limited only by the imagination of the students, teachers and parents.

Research has shown that inventing will:

- Stimulate and foster creativity.
- Enhance self-image.
- Develop the essential skills of logical thinking, creative problem solving, intellectual risk-taking, and communication.
- Relate the scientific method to real life.
- Spark the inventive spirit in our culture.

Students will also:

- Develop higher-level thinking skills.
- Use creative and critical thinking skills.
- Solve actual problems.
- Use library and other research skills.
- Learn to document the inventive-thinking process.
- Experience success and increased self-esteem.
- Produce an original invention and receive recognition for participating in the invention process.
- Acquire public speaking and writing skills.

How to get started

- The Meant to Invent Teacher Guide (available on our website) provides detailed instructions and sample forms for your school to start a program in the classroom or after-school program.
- Teachers, who have first-hand experience in how the program is incorporated into the classroom or after-school program, are available to provide teacher-to-teacher training and assistance, if necessary.
- Teacher workshops are held every two years during the summer.
- Program materials can be found the Academy's website www.aas-world.org. In addition to event and registration materials, the following can be found:

    - K - 8 Inventor's Journal
    - A list of Invention books
    - Tips for presenting your invention
    - Inventors are Ordinary People with Extraordinary Ideas
    - Display Board Instructions
    - Solar Energy Guide

- The Academy of Applied Science will be able to help with specific information.

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Getting to Merrimack Valley High School

From I-93 (heading north or south) take Exit 17 (Penacook, Boscawen). Take a right from either exit ramp to the Roundabout. Follow to the second exit and follow this road until you come to Community Drive (formally Center Street) on your left. Take Community Drive and follow it to the end. Merrimack Valley High School will be in front of you.

OR

Take Route 3 north from Concord for approximately six miles. Go past the Manor Fire Station. Look for the Merrimack Valley High School sign on your right. Turn right onto Beede Ave. and follow it around to the high school.

Event Location: Merrimack Valley High School
106 Village St
Penacook, NH 03303
(603) 753-4311

Timeline

Once you have decided to invent in your classroom, the following timeline may be helpful to you. **This is a guideline only** – the teacher and student should determine the appropriate tasks and time table according to individual needs.

(On-line registration submission date is **March 6, 2015** and the Statewide Celebration date is **March 28, 2015.** Registration opens on **December 1, 2014.**

Week 1	Create an Inventor's Journal with the following components: Identify problems that might be solved with an invention. Choose a problem to be solved. Look for similar inventions.
Week 2	Plan how to solve the problem; List ways to solve the problem in the Inventor's Journal. Choose the best solution to the problem. Sketch ideas in the Inventor's Journal. Begin working on a model.
Week 3	Test the model and improve, as needed.
Week4	Complete the model. Prepare a display board. Prepare oral presentation (3 minute limit).
Week 5	Present invention to class and/or school. **Inventions** – Students are selected to attend the annual celebration at this time. One grade level entry is chosen per **50** student participants. An additional entry is permitted if student participants from a particular grade level exceed **50**. **Rube Goldberg® Machines** - Students are selected to attend the annual celebration at this time. One grade level entry is chosen per **50** student participants. One grade level Rube invention entry per **50** participants with an additional entry allowed if student participants from a particular grade level exceed **50.** **CHALLENGE -** Students are selected to attend the annual celebration at this time. One grade level entry is chosen per **50** student participants. An additional entry is permitted if student participants from a particular grade level exceed **50**. Team members are limited to two (2) students. Ties are accepted. Note: Students can compete in Sponsored/Specialty Award categories (see section on Judging) and all inventions are eligible for grade level awards.

JUDGING AND AWARDS

The judging process is an important component of the celebration. Judges are assigned to each grade level to evaluate each invention and to ask pertinent questions of the inventor. During this time other inventors in the room are invited to listen to each presentation. Again, students must remain in the room with their inventions for the entire hour. Parents and friends are asked to leave the room while judging is underway.

General Category Inventions are judged on the following:

Originality/Usefulness –

Does the invention represent an original and creative thought?
Is the invention a novel or unique solution to an identified problem?
Does the overall presentation of the invention reflect creative or original work?
Does the invention have marketable value?

Written Description/Presentation –

Does the content of the written description clearly express the purpose of the invention and how it accomplishes its purpose?
Is the written description complete and appropriate for the inventor's grade level (the inventor's journal?)

Model/Illustration -

Is the illustration complete, with all parts neatly labeled, and is a clear attractive, visual explanation of the invention (display board)?
Is the model an accurate replica of the idea?

Research Performed –

Was time and effort given to see if this invention had already been invented?

General Categories
Judges may select one invention from each grade level for the following awards:

- Best in Grade
- Environmental
- Special Needs
- Fun and Leisure Time
- Practical and Useful
- Original and Unique
- Most Marketable

Challenge - Inventions for the School Classroom– Inventions are judged on the following:

Originality –

Does the invention represent an original and creative thought?
Is the invention a unique solution to **this challenge problem?**
Does the overall presentation of the invention reflect creative or original work?
Does the invention have marketable value?

Written Description/Presentation –

Does the content of the written description clearly express the purpose of the invention and how it accomplishes its purpose?
Is the written description complete and appropriate for the inventor's grade level (the inventor's journal?)

Model/Illustration -

Is the illustration complete, with all parts neatly labeled, and is a clear attractive, visual explanation of the invention (display board)?
Is the model an accurate replica of the idea?

Research Performed –

Was time and effort given to see if this invention had already been invented?

Judges may select **one Challenge from each grade level** for the following award:

- Best Overall Challenge invention

Rube Goldberg® Machines

Rube Goldberg® Machines are different from the inventions people are used to seeing. A Rube Goldberg® Machine makes a simple task complex. The materials used are the most important component of the machine. Students should be encouraged to use items around the house, i.e., raid an old toy chest, use broken appliances that need repair, etc. The machine must use a certain number of individual steps to complete an assigned task. The working construction of a Rube Goldberg® Machine must be considered safe to operate and must not cause damage. It must use 4 simple machines at least once: wheel & axle, inclined plane, lever, pulley, screw or wedge. A minimum of 6 steps is required to complete the task.

Visit some of the websites indicated below for ideas and additional information on Rube Goldberg Machines.

www.livebinders.com/play/play?id=144675

www.rubegoldberg.com

Rube Goldberg® Machines are divided into two groups:

- Individual projects
- Team projects (limited to 4 students per team)

Rube Goldberg® Machines are judged on the following:

Simple Machines –

Is there evidence of 4 simple machines used at least once: wheel & axle, pulley, inclined plane (includes screw or wedge) and or lever?

Construction/Complexity –

Does the construction match the design (diagram or display board)?
Is it safe and reasonably well constructed?
Does the task use at least 6 steps?

Written/Oral Presentation –

Is there a detailed diagram with tasks describing each stage (at least 6 steps labeled neatly in order?)
Oral description of steps and knowledge of the mechanics of simple machines.
Successful completion of task in one or two tries.

Creativity –

Creativity and overall appearance of the completed contraption and the task it accomplishes (Extra complexities)

Judges may select one Rube Goldberg® Machine from each grade level for the following awards:

- Original and Unique
- Best Team Effort
- Best Individual Effort
- Most Complex

Inventors' Choice Award - Student inventors are asked to view all the other inventions **(but must remain with their invention during their designated judging period).** With ballots they receive at registration, they may vote for their favorite General Invention, Challenge and Rube Goldberg Machine.

SPONSORED SPECIALTY AWARDS

The Academy is grateful for the continued award sponsorship from many individuals, organizations and corporations.

In addition to General category inventions, Challenge and Rube Goldberg(r) Machines, inventions can be geared toward any of the sponsored specialty award listed below. Please encourage your students to consider these areas when brainstorming a problem to solve.

Caring For Your Pet Award – This award recognizes the invention that enhances the lives of you and your pet. 1st, 2nd and 3rd place awards

Fidelity Investments Innovation and Technology Award – Sponsored by Fidelity Investments. This award is presented to the student whose invention reflects Fidelity's commitment to flexibility, innovation, and creative uses of technology. The award will recognize an invention that leverages technology to produce service enhancements, human efficiencies and cost savings. 1 – 1st place award

Library & Information Services Award - Sponsored by ArchivesInfo. This award recognizes an invention that can support the day-to-day work of libraries. Inventions in this category could include items such as a new type of bookshelf, a computer database, or a stand for holding your e-reader while you ride a stationary bike.

Electric Award – Sponsored by IEEE - The world's largest professional association advancing innovation and technological excellence for the benefit of humanity. These awards are given to the inventions that involve the use of electric phenomenon and technology. All inventions using electrical components will be considered. 1st, 2nd and 3rd place awards

Medical Award – Sponsored by the Academy of Applied Science. These awards are given to the inventions that solve a health-related problem. 1st, 2nd and 3rd place awards

Microsoft Technology Award – Sponsored by Microsoft. This award will be given for the best invention using innovation in technology. 1st, 2nd and 3rd place awards

Solar Award – Sponsored by Sundance Solar - The award will be given for the invention that, in new and practical ways, make it easier for people to conserve energy; showing new uses for renewable energy, using wind, sun or dynamo-generated power. 1 – 1st place award

Steve Caney Award – Sponsored by Inventor, Steve Caney. This award is chosen by Steve Caney and is given to the invention of his choice. 1 – 1st place award

Joyce Kenne Scholarship Award – Sponsored by Camp Invention. This award is given to the student whose invention displays creativity, originality and "out of the box" thinking. 1 – 1st place award in Grades 2 - 6

Palleiko Innovation *Award* - Sponsored by Ian Palleiko. The hacker's award! This award will go to the person who creates the most unique innovation by modifying existing/unrelated items. 1 – 1st place award

Sustainability Award – Sponsored by ASHRAE, Granite State Chapter. The award will be given to the invention that best shows improvement on an existing service or create a new service that uses sustainable items or helps reduce waste. 1 – 1st place award

NOTE: If a team created the winning invention, each team member will receive the same award (as indicated above).

All awards are subject to change without notice.

What is sustainability?

Sustainability is based on a simple principle: Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. Sustainability creates and maintains the conditions under which humans and nature can exist in productive harmony, that permit fulfilling the social, economic and other requirements of present and future generations.

Sustainability is important to making sure that we have and will continue to have, the water, materials, and resources to protect human health and our environment.

What categories are considered sustainable?

Projects can fall into a variety of categories from energy, agriculture, medical, environmental protection or social. The goal of the project should be to either improve on an existing service or create a new service that uses sustainable items or helps reduce waste.

It is important to note that sustainable projects do not have to be physical items. The inventions can also be ideas and concepts. It is important that if the idea is a concept, all steps must be thought through and clearly labeled.

What are some examples of sustainable projects?

- Recycling: Litter less Lunch!
- Solar heating and electricity production.
- Replacing nonrenewable fuels with a sustainable fuel source
- Something that improves the quality of life (social sustainability)
- Cleaning up our water supply
- Agriculture: How to improve the soil and how we grow our food
- Reducing the amount of trash going into our landfills
- Keeping toxic materials out of landfills, e.g. batteries, prescription drugs, paints etc

How to motivate your students!

Encourage students to look at sustainability in a different way. It's not just about alternative energy but about improving our quality of life. Sustainability can be found in many different areas that we normally don't think about such as social sustainability and agricultural sustainability.

Electric Awards - Awards are given to the inventions that involve the use of electric phenomenon and technology. Sponsored by the IEEE.

1. There are 3 Electric Awards;
   1st place - $75 value; 2nd place - $50 value and 3rd place - $25 value

2. The Electric Awards are independent of other awards and may be awarded to an invention that receives other invention awards. All inventions using electrical components will be considered.

3. Some portion of an invention should involve the use of electrical phenomenon and technology, including but not limited to the following (as well as other electrical electronic, magnetic, electrochemical, electro-optic or electro-acoustic items):

motors	batteries	antennas	generators
magnets	relays	switches	instruments
solar cells	resistors	capacitors	fiber optics
lights	coil	computing elements	

4. The invention must incorporate appropriate safety measures.

5. The invention may be practical, impractical or a Rube Goldberg Machine.

6. In evaluating an invention, the judge should factor in the inventor's grade level and factor out non-child inventor participation.

Electric awards may be judged on the following:

- Variety of electrical component types
- Number of electrical components
- Electrical complexity
- Inventor understanding of the electrical principles and operation of the invention

Medical Award – Awards that solve a health-related problem. Medical awards may be judged on the following:

Originality –
Does the invention represent an original and creative thought?
Is the invention a novel or unique solution to an identified ***health-related*** problem?
Does the overall presentation of the invention reflect creative or original work?

Usefulness –
Does the invention solve a ***health-related*** problem or need?
Does the invention have marketable value?

Written Description/Presentation –
Does the content of the written description clearly express the purpose of the invention and how it accomplishes its purpose?
Is the written description complete and appropriate for the inventor's grade level (the inventor's journal?)

Model/Illustration -
Is the illustration complete, with all parts neatly labeled, and is a clear attractive, visual explanation of the invention (display board)?
Is the model and accurate replica of the idea?

Research Performed – Was time and effort given to see if this invention had already been invented

Library and Information Science
Libraries are more than just about books. Libraries help us find, keep, and share information. This award recognizes inventions that can support the day-to-day work of libraries. Inventions in this category could include items such as a new type of bookshelf, a computer database, or a stand for holding your e-reader while you ride a stationary bike. Think about items you use in the library or items you could borrow from it. Think about things that might make a librarian's job easier.

Once upon a time we borrowed posters and records. Today we borrow CDs and video games. What can you invent to make your library better for your community? Don't forget that librarians are all about good information! Be sure to do some background research and share what you find to win an award in this category.

Libraries work with museums and archives as partners. Together, these organizations work to record, store, and share cultural items and human knowledge. With that in mind, the following 3 criteria will be used to guide information specialists judging in this award category.

Each of the three categories is equally important:

<u>The idea and its content:</u>
Is the invention an original idea or does it improve on an existing idea?
Is this invention useful to libraries?
Will this invention be useful for teaching, promoting, organizing, or safekeeping human knowledge?

<u>Research:</u>
Does this project incorporate research to show that the invention does not already exist?
Does this project incorporate research data that shows how the item will be useful to others? ("Data" may include information about a problem that exists in the community or statistics about how many people find a need for this item. "Data" can be from a published source or can include original information gathered through a survey.)

<u>Display</u>
Is the student's thought process well documented in written and/or picture form?

SOLAR GUIDE – SUBMITTED BY SUNDANCE SOLAR
Can be found on our website – www.aas-world.org

Caring for your Pet Inventions
Over the years, we have seen many inventions related to pets and how we care for our pets. Such as:

Dog Food Separator
Automatic Dog Feeder
Cat Feeding Mission
Interchangeable Pet Shoes
Doggie Clean-Up
Giving A Dog A Bone

It's not only important to provide your pet with basic needs, like food and water, shelter and exercise, it is also important to include your pet into the family's everyday life. We all get busy and our pets are the first to get ignored. Please show you care by creating an invention that shows that your dog, cat, or other pet is a part of your family.

Your invention will be judged on:

Originality/Usefulness –
Does the invention represent an original and creative idea?
Is the invention a novel or unique solution to an identified pet-related problem?

Written Description/Presentation –
Does the content of the written description clearly express the purpose of the invention and how it accomplishes its purpose?
Is the written description complete and appropriate for the inventor's grade level (the inventor's journal?)

Model/Illustration -
Is the illustration complete, with all parts neatly labeled, and is a clear attractive, visual explanation of the invention (display board)?
Is the model an accurate replica of the idea?

Research Performed –
Was time and effort given to see if this invention had already been invented?

Visit one of the websites below to get some ideas:

http://www.abc.net.au/tv/newinventors/txt/s1148747.htm

http://www.tampabay.com/news/education/st-pauls-school-third-graders-dog-drying-device-wins-usf-young-innovator/1153470

http://homefureverrescue.wordpress.com/2014/06/12/top-10-best-inventions-for-dogs/

http://unleashedunlimited.com/5-of-the-greatest-dog-inventions/

Registration & Student Forms

REGISTRATION WILL BE AVAILABLE ONLINE:
http://www.aas-world.org/YIP/index.html
DECEMBER 1, 2014

ON-LINE INSTRUCTIONS FOR SCHOOL & STUDENT ENTRIES

When registering your students, you will need to know the following:

Teacher/Advisor's Name
School Name and Address
Telephone Number
E-mail
Student's Name
Parent's E-mail Address (important to receive e-mail from the Academy)
Student's Mailing address

Online registration will now include a question regarding the student's availability to compete in the CT Invention Convention at UConn in Storrs, CT on May 2, 2014

Category of Invention:
Invention
CHALLENGE
Rube Goldberg Machine

Special Award consideration:
Electric
Library Services
Medical
Pet Award
Solar Award
Sustainability
Technology
None

Is Inventor part of team? Y/N (only 2 per team this year)

Go to the academy's website – www.aas-world.org

You will receive an automatic confirmation by e-mail.

PLEASE REGISTER BEFORE 10pm on Friday, March 6, 2015
Late entries will not be accepted.

Student Entry Form - Invention
(General Category – includes all sponsored awards)
Bring this form to the Celebration and keep with your invention!

Name _____Grade _____

School_____Teacher_____

1. Name of invention _____

2. Where did you get the idea for your invention?_____

_____

_____

3. Explain how your invention works. _____

_____

_____

_____

4. Who will benefit from your invention? _____

_____

_____

_____

5. Why do you think your invention is new and original? _____

_____

_____

_____

Student Entry Form – CHALLENGE

Bring this form to the Celebration and keep with your invention!

Name _____Grade _____

School_____Teacher_____

1. Name of invention _____

2. Where did you get the idea for the challenge?_____

_____

_____

_____

3. Explain how your invention works.

_____

_____

_____

_____

4. Who will benefit from your invention?

_____

_____

_____

5 Why do you think your invention is original and unique for this challenge? _____

_____

_____

_____

Rube Goldberg® Machine Student Entry Form
Bring this form to the Celebration and keep with your Machine!

A Rube Goldberg® Machine is a device using the most extraordinary means to accomplish an ordinary task with simple machines. The working construction of a Rube Goldberg® Machine must be considered safe to operate and must not cause damage. It must use 4 simple machines at least once: wheel & axle, inclined plane, lever and pulley or screw. A minimum of 6 steps is required to complete the task. The demonstration of the device can be creative or dramatic, and the student may trigger the beginning action.

Student Name:	**Grade:**
School:	**Teacher:**
Name of invention/device:	
What ordinary task does your device accomplish?	
Describe how your device works by listing the steps (at least six), and what happens at each step:	
1.	
2.	
3.	
4.	
5.	
6.	
List the simple machines used and the number of times they are used (at least 4):	

Drawing of Rube Goldberg® Machine:

Draw and label each step – this should match “list of steps” on the front of this sheet.