



Important Highlights:

- Regional Invention Convention will be held Sunday, **March 25, 2018**.
- Regional Event Registration will close in late February, early **March**.
- The registration fee for Regional Invention Convention participants to cover the cost of food, t-shirt, etc. We will pass on a sample document that you can share with winners that details this.
- Invention Category Winners may be eligible to move on to the [National Invention Convention and Entrepreneurship Expo](#), which is May 31-June 3rd this year in Dearborn, MI at The Henry Ford Museum. Please note that the National event does not have a Rube Goldberg invention competition, so those students will not meet eligibility criteria for Nationals.

- **The 2017-2018 Challenge – *Inventions to the Rescue!***

- **Online registration** – Online registration for the Regional Competition on the AAS website. Schools can send up to 3 winners in each participating Grade Level (First in General Invention, Challenge, and in the Rube Goldberg Invention strand) -- typically one winner in each category per up to 50 students in program.

- A reminder that schools will be responsible for securing judges for their School Invention Conventions and communicating clearly to those judges about their event dates, etc. Judges can be from industry, the school, or town community. They are typically given Rubric Score Sheets that indicate what they should be looking for, and you should prepare your learners to be able to talk about their invention and its use. Typically 1 judge per 10-15 students is most effective. We will notify you of additional industry judges that may want to attend your event.

- Only 2 students will be allowed per INVENTION team.** This is in line with many of the invention and science events throughout the country. **Note that up to 4 students** are allowed on **Rube Invention teams**.

- **Display Board, Entry Form and Invention Logs**– Students will still be required to use a 3 panel **DISPLAY BOARD** for their project. A sample display board can be found on www.aas-world.org/YIP/index.html. **Student name/labeling the invention.** Please have the child's name written on the back of the poster. Entry Forms and Invention logs will continue to be a requirement so students have them on the day of competition.

Congratulations on Bringing the Inventive Spirit to your classroom!

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

Teaching invention in the classroom encourages students to think through problems, analyze, ask questions and support decisions—these are 21st Century skill sets that need to be developed in today’s learners. We are confronted every day with problems demanding solutions in our world. How those problems are solved is often determined by whether we have the skills to tackle them.

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 to the unique problems that matter to them.

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 introducing learners to the invention process will:

- ❖ Stimulate and foster creative thinking.
- ❖ Enhance self-image and build self-confidence.
- ❖ 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 of innovation in the culture of our youth.
- ❖ Provide a sense of ownership to a student’s learning.

Students will also:

- ❖ Develop higher-level thinking skills.
- ❖ Integrate information from various subject-areas into project-based learning.
- ❖ Use creative and critical thinking skills.
- ❖ Solve problems of their own choosing.
- ❖ Use Information Literacy and other research skills.
- ❖ Learn to document the design-thinking process.
- ❖ Conduct Model-Eliciting-Activities (MEAs).
- ❖ Experience success and increased self-esteem.
- ❖ Produce an original invention and receive recognition for participating in the invention process.
- ❖ Acquire early public speaking and technical writing skills.

HOW TO GET STARTED

- 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. We have also started a Facebook Group and Twitter account for the Young Inventors' Program that we would love for you to join. You can ask questions, share materials, etc. via this social media tool. There is also an online training workshop offered through the NH Department of Education's Moodle site for online learning - OpenNH.
- Program materials and additional resources can be found the Academy's website www.aas-world.org. In addition to event and registration materials.

LEARNER TIMELINE

This is a guideline only – the school, teacher and student should determine the appropriate tasks and time table according to how the school would like to implement the program as well as individual classroom or student needs.

(On-line **Regional Competition** registration typically opens in December and the Regional Invention Convention date is in late March.)

- Week 1**
- Keep an Inventor's Journal that documents your process.
 - Brainstorm problems that might be solved with an invention. Interview others about what problems they face and what they might need.
 - Choose a problem to be solved.
 - Look for similar inventions and identify how your invention is unique.
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- 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 and if necessary, design a proto-type in the Invention Log.
 - Collect up-cycled and recycled materials to help you brainstorm design and conduct your build.
 - Begin constructing a model.
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- Week 3**
- Test the model and improve, as needed.
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- Week4/5**
- Complete the model (we encourage it to be a working model, but it does not need to be).
 - Prepare your display board.
 - Prepare and practice oral presentation (3 minute limit).
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- Week 6/7**
- Present invention to class and/or School Invention Convention

Inventions – Students are selected as winners to attend and compete in the Regional Invention Convention. Typically, one grade level entry is chosen per **50** student participants. An additional entry is permitted if student participants from a particular grade level exceeds **50**. During event registration TEACHERS will select which SPECIALTY AWARD CATEGORIES winners are entered into, so please discuss with your school winners.

Rube Goldberg® Inventions - Students are also selected to attend and compete in the Regional Invention Convention. 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 exceeds **50**.

CHALLENGE - Students are selected to attend and compete in the Regional Invention Convention. 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.

JUDGING AND AWARDS

The judging process is an important component of the Regional Competition. Judges are assigned to each grade level to evaluate each invention and to ask pertinent questions of the inventor.

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 also** 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 – Real Fun! Inventions that Take you Away from Screens!

Inventions are judged on the following:

Originality/Research Performed –

- 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 -

- Illustration complete with parts neatly labeled, clear, attractive, visual explanation.

RUBE GOLDBERG® INVENTIONS

Rube Goldberg® Inventions makes a simple task complex. The materials used are often 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 should use 4-6 serial reactions via 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. You may have seen this [2015 GoldieBlox commercial](#) featuring a very clever Rube Goldberg Machine. Other resource sites include:

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

Rube Goldberg® Inventions are divided into two groups:

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

Rube Goldberg® Inventions 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® Invention 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 Invention.

POTENTIAL SPECIALTY AWARD CATEGORIES

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), inventions can be geared toward any of the sponsored specialty award categories listed below. Please encourage your students to consider these areas when brainstorming a problem to solve.

Caring for Your Pet

Innovation

Library & Information Services & Learning

Electric

Medical

Technology

Inventor Honors

Out-of-the-Box Thinking

Sustainability/Environmental

Service

Engineering/Design

****All awards are subject to change without notice and are awarded at the discretion of the judges****

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.

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 – Time and effort given to see if this invention had already been invented

Library, Learning, 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:

The idea and its content:

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?

Research:

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.)

Display

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

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?

ON-LINE INSTRUCTIONS FOR SCHOOL & STUDENT ENTRIES

TEACHERS, 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 Contact Information
Student's Mailing address

Category of Invention:

Invention
CHALLENGE
Rube Goldberg

Special Award consideration:

Electric
Library Services
Medical
Pet Award
Engineering Award
Sustainability
Technology
None
Etc.

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

You will receive an automatic confirmation by e-mail.

Late entries may not be accepted due to deadlines in getting student names into event publication.

Student Entry Form - Invention
(General Category – includes all sponsored awards)
Bring this form to the Regional Convention 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 Regional Invention Convention 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® Invention Student Entry Form

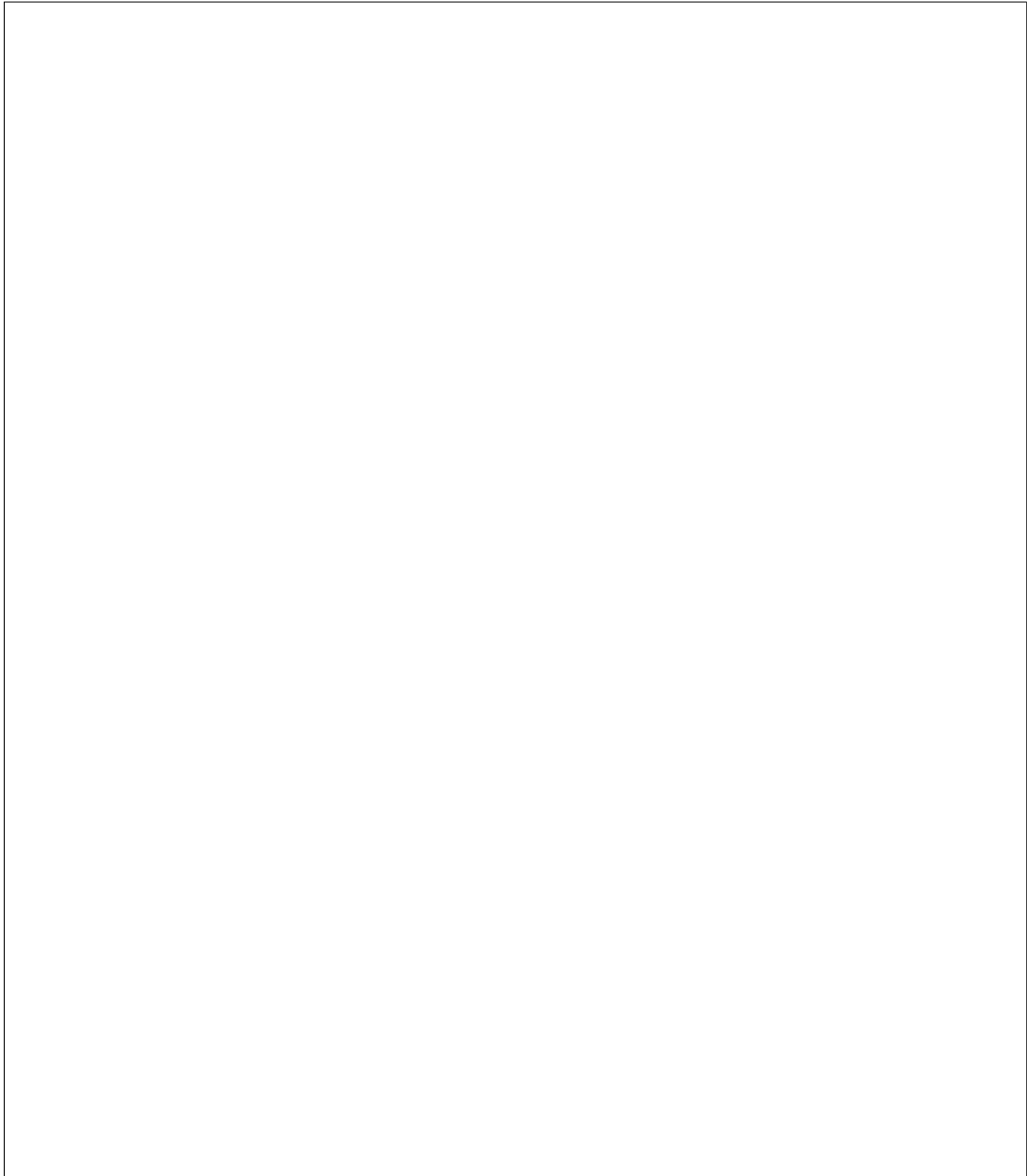
Bring this form to the Regional Invention Convention and keep with your Machine!

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® Invention:

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



You can join the conversation on [Facebook](#) and [Twitter](#)! Show us how your students are doing with #InventionConvention and tweet us pics of you using your #YIPKit or students busy in the design process! (#DesignThinking, #YoungInventors, #InventionConvention)

ENCOURAGE the students to have FUN! Good luck with your School Event!