









The Invention Convention program is designed to activate a free project-based learning curriculum through school, state and national showcase events. Students learn:

- To think critically by identifying problems in their world.
- The impact of inventions in their lives.
- To apply STEM, invention and entrepreneurial skills building real-world solutions.

Why is this important?

Aligned with national standards, our K-12 invention education program can be used within any discipline by tapping into students' innate desires and abilities to identify problems and create meaningful solutions.

How do I get started?

Bring Invention Convention into your classroom and activate students' creative and critical-thinking ability. Just register for access to our **FREE** Invention Curriculum, and use this flexible, project-based learning tool to help enhance student understanding of invention and its context in the real world.

What's in it for my students?

They become part of a global ecosystem which allows them the opportunity to gain new skills, friendships, recognition and perspectives.



GETTING STARTED



Michigan Invention Convention provides students in grades 3-12 an interactive and interdisciplinary opportunity to use the invention process to create and pitch an original product at a statewide convention. Students will build their critical-thinking and entrepreneurial skills and, for those who qualify, may compete in the National Invention Convention and Entrepreneurship Expo.

The Henry Ford hopes that the Michigan Invention Convention will bring together problem-solvers, inventors and entrepreneurs of all ages, backgrounds and disciplines.

Get Your Students Involved!

Educators of Michigan schools, ISDs, cooperatives and after-school programs serving student populations in grades 3-12 are welcome to participate.

Contact the Educator Ambassador in your school district for more information. If your school or district does not currently participate in Michigan Invention Convention, contact us at inventionconvention@thehenryford.org.

Important Dates

- Educator Info Session: Schedule a free, hour-long session on how to participate in the invention convention program in your school. This session can be held at The Henry Ford, at your school or via webinar.
- School Invention Fair: Organized by the educator ambassador before March 18, 2019.
- Michigan Invention Convention: April 27, 2019, at The Henry Ford.
- National Invention Convention: May 30-June 2, 2019, at The Henry Ford.

Student Eligibility

Participating students must:

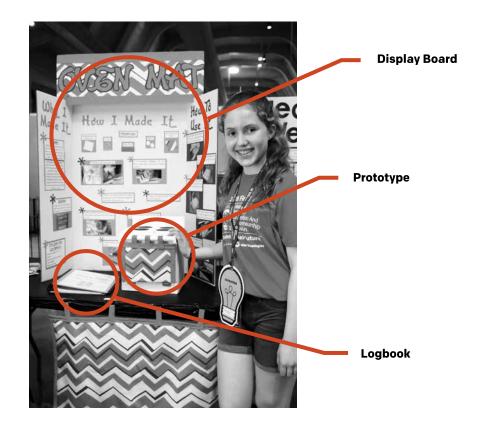
- Be in grades 3-12.
- Compete at their local invention convention organized by local ambassador.
- Be nominated by an educator or school to compete at the Michigan Invention Convention.
- Compete as an individual or on a team (no more than four members). Teams may compete against individuals and vice versa.

How to Compete

Students will need to develop an invention that tries to solve a problem in their life, the life of a loved one or their world. Students will develop, test and then pitch their project at the convention. There is no application fee to participate in the Michigan Invention Convention.

Students who compete and qualify at the Michigan Invention Convention will be invited to compete in the National Invention Convention and Entrepreneurship Expo.





All projects must have:

- Inventor's log (logbook or journal)
- Display Board
- Prototype
- Pitch Video

Logbook:

- Students use logbooks to document their journey. It should not be just a report completed after the fact.
- Logbooks need to document all aspects of the invention process: identifying, understanding, ideating, designing, building, testing, refining.

Display Board:

- Students will need to create a visual display (trifold poster board) to compete.
- The display should communicate significant aspects of the invention process.

Prototype/Model:

- Students should create a model that demonstrates the key characteristics that make the invention valuable, usable and unique.
- Prototype does not have to be fully functioning.

Pitch Video:

 The Michigan and National Invention Conventions require students to record and submit a 4-minute unedited and continuous video of student(s) pitching their invention.

Contact Us

For more information on how to get involved, please contact **inventionconvention@ thehenryford.org** with your name, organization and how you hope to participate.

We look forward to supporting you and your students as you explore the benefits of innovation and project-based learning.







Thank you for your interest in the Michigan Invention Convention. Here are some tips for organizing your local invention convention program. Remember that The Henry Ford is always here to support you.

1. Contact The Henry Ford Michigan Invention Convention team at inventionconvention@ thehenryford.org and help us get to know you. What subject do you teach? How many students are you hoping to have participate at your school? How can The Henry Ford support you?

2. Organize your team. Decide which teachers and how many students will participate (a rough estimate will do at this early stage).

3. Schedule an educator session. This free, hour-long session on how to participate in the invention convention program in your school can be held at The Henry Ford, at your school or via webinar.

4. Introduce invention learning to your students, and integrate free invention curriculum into participating classrooms.

Typically, teachers spend roughly 6-8 weeks on invention learning, beginning as early as October. You may choose to do this during normal school hours or in after-school clubs. The Henry Ford has compiled a list of resources that you may use, including National Invention Convention Curriculum. Access at **nationalinventioncurriculum.org**.

5. Set a budget. Depending on how big you wish your convention to be, you may not need a budget at all. Remember that some of the best inventions have been built with little to no money. Some possible expenses are:

- Invention curriculum professional development.
- Cost of display boards and some materials for prototype building.
- Awards and incidentals for local school convention (if needed).
- Bus to transport students to the Michigan Invention Convention at The Henry Ford.

FREE

K-12 INVENTION CONVENTION CURRICULUM

Presented by StanleyBlack&Decker

- Interdisciplinary and standards-based with dynamic activities to fit any subject.
- Flexible: Delivered in 6-12 weeks in class, after school, at home or independent study.
- Framework guides students through seven steps of the invention process.
- Invention log documents every step in making their invention, recording what they did, why they did it and how they did it.

Access for FREE at nationalinventioncurriculum.org.





Quick List

- Contact Michigan Invention Convention team.
- Organize your team.
- Schedule an educator session.
- Introduce invention learning to your students, and integrate free invention curriculum.
- Set a budget.
- Support students while they create their inventions.
- Hold a kickoff event (optional).
- Schedule your local invention convention.
- **D** Recruit volunteer judges.
- Hold your local invention convention.
- Determine which projects should apply to Michigan Invention Convention.
- Attend Michigan Invention Conventior
- Attend National Invention Convention and Entrepreneurship Expo.

6. Support students while they create their

inventions. We recommend that you use the convention rules and judging rubrics set by the Michigan Invention Convention and National Invention Convention when creating lesson plans and teaching the invention process. To qualify for Michigan Invention Convention, each project must include the following:

- Logbook
- Display board
- Prototype
- Video pitch

7. Hold a kickoff event (optional). Your local invention convention kickoff can include a formal event, a letter to parents and/or putting up posters around your school.

8. Schedule your local invention convention.

To participate in the 2019 Michigan Invention Convention, your local convention must be held before March 18, 2019, the Michigan Invention Convention registration deadline. You are free to choose a date between January and March 18 for your local invention convention that works best for your schedule.

9. Recruit volunteer judges (ongoing). Judges can be anyone from parents and teachers to professionals and local officials. Judges must judge and score each student project according to a preset rubric. The judging results will help you determine which projects should apply to Michigan Invention Convention. Judging form and rubric included in this packet.

10. Hold your local invention convention. Hold

your local convention BEFORE March 18, 2019. Invite parents, teachers, administrators, local businesses and local organizations to attend and view student projects. Judges should score and comment on all projects. 11. Teachers determine which projects should apply to Michigan Invention Convention (percentage of projects will be determined by The Henry Ford staff). Teachers will help all students competing in Michigan Invention Convention register via the online application Judgify (link to be sent out in March). Students, families, teachers, judges and other guests will need to register on EventBrite.

12. Students attend Michigan Invention Convention on April 27, 2019, at The Henry

Ford. Teachers are encouraged to accompany their students.

13. National Invention Convention and Entrepreneurship Expo: Qualifying projects at Michigan Invention Convention may be invited to apply to National Invention Convention at The Henry Ford on May 30-June 2, 2019.

Remember that:

- Projects should be student-driven. Teachers and parents can support students with curriculum, lesson plans and prototypebuilding help, but projects should ultimately be the original work of students.
- All new teachers MUST participate in a professional development session with The Henry Ford.
- The Henry Ford Michigan Invention Convention team is here to help! Our staff will check in with all teacher leads on a regular basis through the Michigan Invention Convention program. You can ask questions at any time by emailing inventionconvention@thehenryford.org.



2019 MICHIGAN INVENTION CONVENTION COMPETITION RULES



Selection

This is an invitation-only event. Inventors are carefully selected based upon criteria set by The Henry Ford.

Eligibility

Inventors and entrepreneurs who have entered affiliate member competitions and won an invitation from your affiliate member are eligible to take part in this competition.

In order to be eligible to apply to the Michigan Invention Convention, students must be in grades 3-12 and be nominated by their local school, district or regional hub. All projects must have an inventor's log (logbook or journal), a poster board, a prototype (which may be nonworking) and a 4-minute unedited and continuous pitch video. Projects must also be of sufficient accomplishment and design to be at a state competition level, as determined solely by the judges. All accepted inventors will be deemed finalists upon acceptance to the Michigan Invention Convention.

This competition is open to both individual and team competitors. Teams may compete against individuals, and vice versa, for select award categories. There is a limit of four (4) team members who may be on a team. All team members in attendance must take part in the team "pitch" for the video and on competition day.

Logbooks or journals must be brought to the competition when invention displays are set up on Saturday, April 27. They will be judged that day. Teams only need to submit one logbook for their project. Logbooks do not need to be uploaded to the Judgify registration site. Each student can enter only one entry into the Michigan Invention Convention and Entrepreneurship Expo. No student can participate in both team and individual competition.

Project Restrictions

This is a large, public venue and proper expectations about behavior and projects should be considered. The following items are not allowed on your person or in your project:

- Electric stun guns, martial arts weapons or devices
- Guns, replica guns, ammunition, and fireworks
- Knives of any size
- Mace and pepper spray
- Razors and box cutters

Also, no balloons, glitter or confetti are allowed in any form.



Award Categories

Place Awards (15): First-, second- and thirdplace awards will be given for the following grade groupings:

- Grades 3-5
- Grades 6-8
- Grades 9-12

One team will be awarded the Grand Prize.

Teams will take part in the same judging processes as individuals. Rules for teams

will mirror those of the individuals. Michigan Invention Convention staff and judges reserve the right to combine and/or reconfigure awards categories.

Awards provided to students, including any plaques and monetary awards, are the property of the awarded students and not the school or organization they are representing.







Grade Award Rubric: Points

Category	Dimension	Points
Invention Process (45)	Identifying and Understanding	15
	Ideating	10
	Designing and Building	10
	Testing and Refining	10
Invention Impact (25)	Value Proposition	5
	Market Potential	5
	Social Value	5
	Originality	10
Inventor Communication (30)	Logbook	5
	Display Board	5
	Prototype or Model	5
	The Online Pitch	5
	The Live Pitch and Q&A	10
	TOTAL	100



Invention Process (45)	Goal	Exemplar Example
Identifying and Understanding (15)	The identifying stage is where inventors seek or find a problem that they want to solve. It is often important to ask an inventor how they uncovered this problem and who else might experience the same problem and to what end. Understanding a problem refers to the research	An example of a well-defined problem: 17,000 kids ages 18 and under experience an infection from their IV when hospitalized; this costs insurance companies over \$X dollars and kids are hospitalized for X days longer than anticipated.
	that an inventor has done to understand what else exists to solve the problem as well as the full impact their problem may have on others.	An inventor has researched multiple (4+) sources to understand the problem, including but not limited to: • Google • USPTO.com • Subject matter experts (interviews) • Visiting stores • Looking at industry news
Ideating (10)	Ideating refers to the brainstorming or imagination stage that a student goes through to generate original ideas and begin to develop idea/s into specific requirements to determine the likelihood of success.	Student explains that they identified 2+ ideas and explains the elimination process. Could include a personal story.
Designing and Building (10)	Designing an invention or a prototype requires critical-thinking skills; students should be able to articulate how they wanted the invention to work and why they chose the materials they did for executing their invention.	Includes a written diagram with labeled materials that takes the judge through the journey of the design process.
Testing and Refining (10)	The key to this step is iterations, improvements and perseverance. The best inventors know that the first build is often not the best and seek feedback through testing and refine their design accordingly.	The best inventors include a written diagram with labeled materials that takes the judge through the journey of the design process. Example: One young inventor, who was creating a battery from bananas, discovered in her first batch of banana mush that she did not get much electrical output. She modified the design numerous times based on the detailed graphs and charts that she kept of her electrical output from various iterations. Eventually, her resigned battery produced more electrical output.



Invention Impact (25)	Goal	Exemplar Example
Value Proposition (5)	Does the inventor clearly summarize why a consumer or user should buy or use his/her invention? This statement convinces a potential consumer that one particular product or service will add more value or better solve a problem than other similar offerings	The best answers provide a clear age- appropriate description and understanding of users and benefactors. (Note that the inventor can describe these roles using different terms. The key is to assess his/her understanding of value creation.)
Market Potential (5)	 Market potential assesses the scope and likelihood of an invention gaining users. 1. How large and/or viable is the potential market for the invention? 2. To what extent was the market appropriately researched and scoped? 	The best answers address quantitative research and understanding of the size of the potential market. Example: an invention that removes CO2 from the environment included research of the number of organizations that already use similar technology to approximate the number of early adopters.
Social Value (5)	 Some inventions may address pressing social issues. The social impacts may not be easily quantifiable in a traditional economic sense but are nevertheless important to consider in the context of overall invention impact. Does the inventor consider and address the potential environmental, societal and other nontraditional impacts of their invention? To what extent does the invention improve environmental/social conditions or have a minimal adverse impact? 	The inventor considered a broad range of social impacts and clearly articulated their potential impact.
Originality (10)	Is the student's invention unique, novel and creative? Is it distinguishable from prior inventions and those of his/her peers?	The invention is beyond incremental and is something the judge has not considered or seen before.



Inventor Communication (30)	Goal	Exemplar Example
Logbook (5)	 Does the logbook document a journey, not just a report done after the fact? Does the logbook document all aspects of the Invention Process? 	Logbook contains topic research, indicating that the young inventor is exceptionally knowledgeable about his/her problem and understands the issue thoroughly, including statistics about the significance of the problem. Logbook contains research about the existence of similar inventions and how their invention is different or better. Logbook documents research from at least four sources, including interviews with experts in the field. Logbook contains documentation to show progression of prototype iterations and improvements. Was the journal organized, effective and complete? If not, score cannot be greater than 2.
Display Board (5)	 Does the display have strong visual appeal? Is the display eye-catching with color, pictures, graphs and variety? Is grammar, spelling and punctuation correct and, if hand-printed, neatly done? Does the display communicate significant aspects of the Invention Process? Are there unique aspects to display, such as shape (display is not a basic cardboard trifold)? 	The 2016 National Invention Convention "Best Display" winner went "outside of the box" when designing his outhouse-shaped display for his "Porta Potty Survival Kit" invention. In addition, he created a QR code for viewers to scan and listen to his own words, explaining his invention.
Prototype or Model (5)	 Does the prototype clearly communicate the key characteristics that make the invention valuable, usable and unique? Note: Outside assistance and collaboration is acceptable as long as the student is driving the process and documents outside help. The student should only do what he/she can safely do. Credit should be given where help is given. 	Examples of strong prototype include: 1) working apparatus of real mashed bananas hooked to wires to generate electricity that had been tested and modified repeatedly to improve the electrical output and 2) a detailed environmental model to help endangered turtle hatchlings find their way back to the ocean, composed of a metal tray with sand on half and simulated water with glossy blue paper on the other half that included small plastic turtles and



UV lights around the perimeter to show how the

lights would help the turtles.

Inventor Communication (30)	Goal	Exemplar Example
The Online Pitch (5)	The online pitch is a single recording that clearly and succinctly communicates the invention process and impact. It will be recorded and uploaded well in advance of the National Invention Convention event. The best pitches include the following: Introduction: inventor's name, state, grade,	
	 etc. An overview of all invention process elements outlined in the invention scoring criteria (above). Use and/or reference of all physical communication elements (including the logbook, display board, and prototype). Explanation of origination of the idea (helping to assess the originality). Other recommendations include: Clear, concise, minimal stammering or superfluous words, correct grammar. Enthusiasm, passion, inflection, appropriate body language. No reading from cue cards; explanation in own words. Not answering questions from someone 	
	 off/on camera. No longer than 5 minutes. Equal participation of all team members. 	



(10) N si of	 The Live Pitch and Q&A takes place during the National Invention Convention event and is very similar to the online pitch but with the addition of a judge question and answer (Q&A) portion. The best pitches include the following: Introduction: inventor's name, state, grade, etc. An overview of all invention process elements outlined in the invention scoring 	Invention was clearly created by the student as evidenced by their ability to clearly and thoroughly explain the invention. How do they handle live questions? Composure? Do they use the question in their answer?
•	Introduction: inventor's name, state, grade, etc.An overview of all invention process	Composure? Do they use the question in their
•	Introduction: inventor's name, state, grade, etc.An overview of all invention process	
	 communication elements (including the logbook, display board and prototype). Explanation of origination of the idea (helping to assess the originality). 	
	in own words.	
	 No longer than 5 minutes. 	



RESOURCES

National Invention Curriculum nationalinventioncurriculum.org

Innovate Curriculum thf.org/innovate

STEMIE Coalition Website
stemie.org

Educational Resources thf.org/education

Model I Learning Framework thf.org/education/teaching-innovation/modeli

The Henry Ford's Innovation Nation Season 1

youtube.com/playlist?list=PL15Gi hUisSLQlgUpHW6bK9Csr0CFjeGlp

Season 2

youtube.com/playlist?list=PL15GihUisSLRIm4i_ dJKgz5kn-YzF9iNK

Season 3 youtube.com/playlist?list=PL15GihU isSLQWV9qKLapErcmJMsogQuiT

Season 4

youtube.com/playlist?list=PL15Gi hUisSLREIHb5ZVQbC0Dkb3IEmRUp

Hollow Flashlight Girl

Season 1: Episode 5 Learn about the steps, risks, and failures this young innovator experienced in creating a battery-free flashlight. youtube.com/watch?v=RCWVID

wnplA&feature=youtu.be&list=PL15Gih UisSLTqur5bibKgLFNbNuPI-mqs







DEAR PARENTS AND GUARDIANS,

Your child's teacher has elected to participate in the 2019 Michigan Invention Convention program. The Michigan Invention Convention program provides students in grades 3-12 an interactive and interdisciplinary opportunity to use the invention process to create and pitch an original product at a statewide convention. Students will build their critical-thinking and entrepreneurial skills. Qualifying projects may even compete in the National Invention Convention and Entrepreneurship Expo.

The Henry Ford hopes that the Michigan Invention Convention will bring together problem-solvers, inventors and entrepreneurs of all ages, backgrounds and disciplines.

This letter outlines the important things to know about the process and convention as you support your child this year.

If you have any questions, please contact your child's teacher. Thank you for your support!

Michigan Invention Convention at The Henry Ford

Important Events

- Local Invention Convention: Your child's teacher will incorporate invention learning into the classroom, culminating in a local invention convention at your school or local hub.
- Michigan Invention Convention: Qualifying projects from Michigan schools will be invited to present their projects to their peers and a panel of judges at Michigan Invention Convention on April 27, 2019, at The Henry Ford.
- National Invention Convention: Students who do well at Michigan Invention Convention may be invited to participate at the National Invention Convention, to be held May 30-June 2, 2019, at The Henry Ford.

Student Eligibility

Participating students must:

- Be in grades 3-12.
- Compete at their localinvention convention organized by local ambassador.
- Be nominated by educator or school to compete at Michigan Invention Convention.
- Compete as an individual or on a team (no more than four members). Teams may compete against individuals and vice versa.

How to Compete

Students will develop an invention that tries to solve a problem in their life, the life of a loved one or their world. Students will develop, test and then pitch their project at the convention.

All projects must have:

Logbook

- Students use the logbook/journal to document their journey. It should not be just a report done after the fact.
- Logbooks need to document all aspects of the invention process: identifying, understanding, ideating, designing, building, testing and refining.

Display Board

- Students will need to create a visual display (trifold poster board) to compete.
- The display should communicate significant aspects of the invention process.

Prototype/Model

- Students should create a model that demonstrates the key characteristics that make the invention valuable, usable and unique.
- Prototype does not have to be fully functioning.

Pitch Video

 Michigan and National Invention Convention require students to record and submit a 4-minute unedited and continuous video of student(s) pitching their invention.

Your role

As a parent, your role is to support your child as he or she learns the invention process and develops his or her own invention. It is important to note that outside assistance and collaboration is acceptable as long as the student is driving the process and documents outside help.

INVENTION CONVENTION

JUDGING FORM

Team Name:

Grade:

Judge:

Evaluation Criteria

Start at the average/middle score (8 out of 15, 5 out of 10 and 3 out of 5), then add and deduct points.

Invention Process (45%)	Points	Comments
Identifying and Understanding	/15	
Identifies and defines problem being solvedHas researched problem and possible solutions		
Exemplar: Clearly defines problem and has researched 4+ sources to understand problem		
 Ideating Identifies their ideas for solving problem Explains how they determined the best idea 	/10	
Exemplar: Explains that they identified 2+ ideas and explains the elimination process		
 Designing and Building Explains purpose & process for the design & build 	/10	
Exemplar: Clearly explains the journey of their design, including a written diagram with labeled materials		
Testing and RefiningExplains how they tested and optimized invention	/10	
Exemplar: Clearly explains the journey of their design, including a written diagram with labeled materials		
Invention Impact (25%)	Points	Comments
 Value Proposition Explains who would buy/use the invention and why they would use the invention rather than other products 	/5	
Exemplar: Provides a clear description and understanding of users and benefactors		
 Market Potential Has researched and demonstrated knowledge of how viable the market is for invention 	/5	

Exemplar: Addresses quantitative research and understanding of users and benefactors

Invention Impact (25%) cont.	Points	Comments
 Social Value Understands and describes positive and negative impacts of invention on the environment and society 	/5	
Exemplar: Considers a broad range of social impacts and clearly articulates their potential impact		
OriginalityInvention is unique, novel and/or creative	/10	

Exemplar: Something you have not considered or seen before

Inventor Communication (30%)	Points	Comments
 Logbook Documents invention journey Needs to be organized, effective and complete to receive a score greater than 2 	/5	
Exemplar: Contains research about problem, research about similar inventions and thoroughly explains what makes their invention better/different. References 4+ sources including interviews with experts in the field.		
 Display Board Displays components of invention process and invention's potential Visually appealing 	/5	
Exemplar: Display is "outside of the box" (i.e., QR code for viewers to scan and listen to inventor's words explaining invention)		
 Prototype/Model **Does not need to work** Communicates key characteristics Useful visual of invention 	/5	
Exemplar: Working apparatus or detailed model that effectively demonstrates intent and function of invention		
 Live Pitch and Q&A Best pitches introduce inventors, explain their process, reference project components (prototype, logbook, board) and articulate the origination and potential of invention idea Composure and ability to handle live questions 	/10	
Exemplar: Invention was clearly created by the student as evidenced by their ability to clearly and thoroughly explain the invention.		