How Inventions Make a Real-World Impact

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Grab Bag Inventing

FIG. 4.

Available On:

LEMMELSON-MIT

MIT Open Learning
Invention Education has demonstrated the ability to increase student engagement and participant interest in STEM education, to promote knowledge acquisition, to develop characteristics, skills, and mindsets that are needed not just for the future economy but for our increasingly connected world.
INVENTOR TRAITS & DISPOSITIONS

» Empathy  
Listens to viewpoints other than just their own, understands variety of perspectives, the ability to understand the challenges or needs of others

» Curiosity  
Alertness to practical problems and opportunities; intentional focus on both large overarching system and on small micro-components

» Calculated Risk-Taking  
Conservation of energy where possible in order to minimize unnecessary exposures

» Resourcefulness  
Seeks solutions with available resources, seeks ways to increase available resources

» Creativity  
Ability to pair things in an unanticipated way to reveal untapped potential

» Resilience  
Embraces failure as a learning experience, ability to work towards delayed gratification, critical stance toward their own work

» Passion  
Optimistic commitment to vision coupled with flexibility to contemplate novel ways to achieve desired end result

» Tolerance for Ambiguity & Complexity  
Comfort working on the margins of established knowledge, willingness to become immersed in multi-layered problem set
1. Context
   Invention Education Philosophy

2. Empathy
   Real-World Problem Identification, Definition, & Collaboration

3. Problem Solving
   Prototyping, Tools, Techniques, & Documentation

4. Continuous Learning
   Characteristics, Skills, & Mindsets

5. Iteration
   Community of Feedback & Culture of Iteration

6. Sustainable Innovation
   Entrepreneurial Exploration, Go-To-Market Evaluation, Intellectual Property, Economic Impact, & Sustainability
The **Look** + Feel of Invention Education

**INVENTIVE LIGHT SOURCE**

**IMPROVE: HABITAT - PRODUCTIVITY - LEISURE**

**Steps:**
1. Have Fun!
2. ID Problem
3. Brainstorm
4. Fabricate
5. Share

**Materials:**
- 3V Coin Battery
- LED Light Bulb
- 3x5 Card
- Scotch Tape
- Scrap Wire

**Notes:**
- ~46¢ per student

**Share:**
My name is __________ and I am an inventor. My invention is named The “______________” and it solves the problem of _________________ by


**Complete Lesson Plan Available through PBS NewsHour Lesson Plans:**
The lionfish zapper hits the open seas

https://www.pbs.org/newshour/
10 lesson plans teaching the power of invention

Using the invention process, students will explore solutions to some of the problems facing the Mars mission and decide whether or not they are on board with expanding humankind’s reach in the universe. Continue reading --
Discuss questions as a class or with a partner.

1. **Essential question**: How have inventions affected the lives of those living with a disability?

2. What other problems might be solved through 3D-printing?

3. Do you know someone in your life who has been helped by an invention? Discuss how the invention helped them.
PBS Learning Media Invention ED Lessons

Invent Apps That Help Others and Build Empathy

Interactive lesson plan with culminating “elevator pitch” activity in which students pitch their invention to key stakeholders.
PBS NewsHour Extra - Role of Video News Stories

“Creating a low cost mechanical concussion sensor”

The LINC | Philadelphia, PA via NewsHour’s STEM Student Reporting Labs
Submit an article:
* 500-800 words
* First person
* Anecdotes
* How current events and current issues impact life in school for you and your students
* vpasquantonio@newshour.org
Lesson plan: Solar invention makes safety and production levels shine

Opinion: Every student can be an inventor
Impact of Invention Education
INVENTION EDUCATION RESOURCES

You can find more resources on Invention Education from our partner organizations below:

The Henry Ford
Lemelson-MIT
Maker Ed
National Invention Convention

PBS NewsHour
Society for the Science and the Public
United States Patent andTrademark Office
WGBH Global Design Squad

www.inventioneducation.org
Sharing

● Questions and Answers

● Open Discussion

● Feedback

Please evaluate this session via:

○ ISTE19 App  or
○ Online https://conference.iste.org/2019/program/search/
Resources

Websites:

- www.lemelson.org
- www.lemelson.mit.edu
- www.pbs.org/newshour/extra
- www.inventioneducation.org
- open.mit.edu/c/lemelsoneducators

Social Media:

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