

# BOOK OF IDEAS

name



Enjoy This Sample *Book of Ideas*—A  
Fun New Take on Student Journaling

# Book of Ideas

WHERE LEARNING & STUDENT  
ENGAGEMENT INTERSECT



Kids are naturally creative and curious—and they love to share their ideas and stories. Most elementary school students have an incredible ability to put their all into what interests them. Innovation and entrepreneurship help you pull that energy and initiative into your classroom.

The Book of Ideas is designed to let students connect with—and see value in—their ideas. This young inventor's notebook inspires kids to write down or draw, explore, and discuss their own ideas and inventions that often incorporate classroom learning.

The Book of Ideas is **NOT** about the right answer, perfect spelling, or fitting into a “box.”

It **IS** about:

- 💡 **Starting a conversation with your students**
- 💡 **Inspiring students to express their ideas & demonstrate their knowledge**
- 💡 **Providing you insight into how to engage every learner**

- 👤 Provides a low-pressure way to address learning gaps
- 👤 Enables students to work independently and collaboratively
- 👤 Refines SEL skills, e.g., giving & receiving feedback and respecting different perspectives
- 👤 Contains innovation prompts and leveled readers aligned with ELA, science & engineering learning objectives
- 👤 Includes a lesson guide for teachers to get going and then lets students take it from there

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# THE BOOK OF IDEAS CLASS PACK



There is no wrong way to use the Book of Ideas in your classroom.

Use it as a conversation-starter, a way to encourage writing, creativity, communication, collaboration, and exploration among ALL learners.

## EACH BOOK OF IDEAS CLASS PACK CONTAINS

- An Educator Guide
- 30 copies of the Book of Ideas – (32-page full-color, stitched, softcover, journal available in Kindergarten, Grades 1, 2, 3, 4, 5, and Middle School versions)
- 30 copies of My STEM Stories notebooks (with vocabulary, discussion tips, and stories of STEM entrepreneurs of all ages. (Also available in the versions listed above))

## IN THE NEXT FEW PAGES YOU WILL FIND

- Examples of student inventions and writing from their Book of Ideas
- Excerpts from the Book of Ideas Educator Guide
- Blank innovation prompt spreads to use in your classroom.

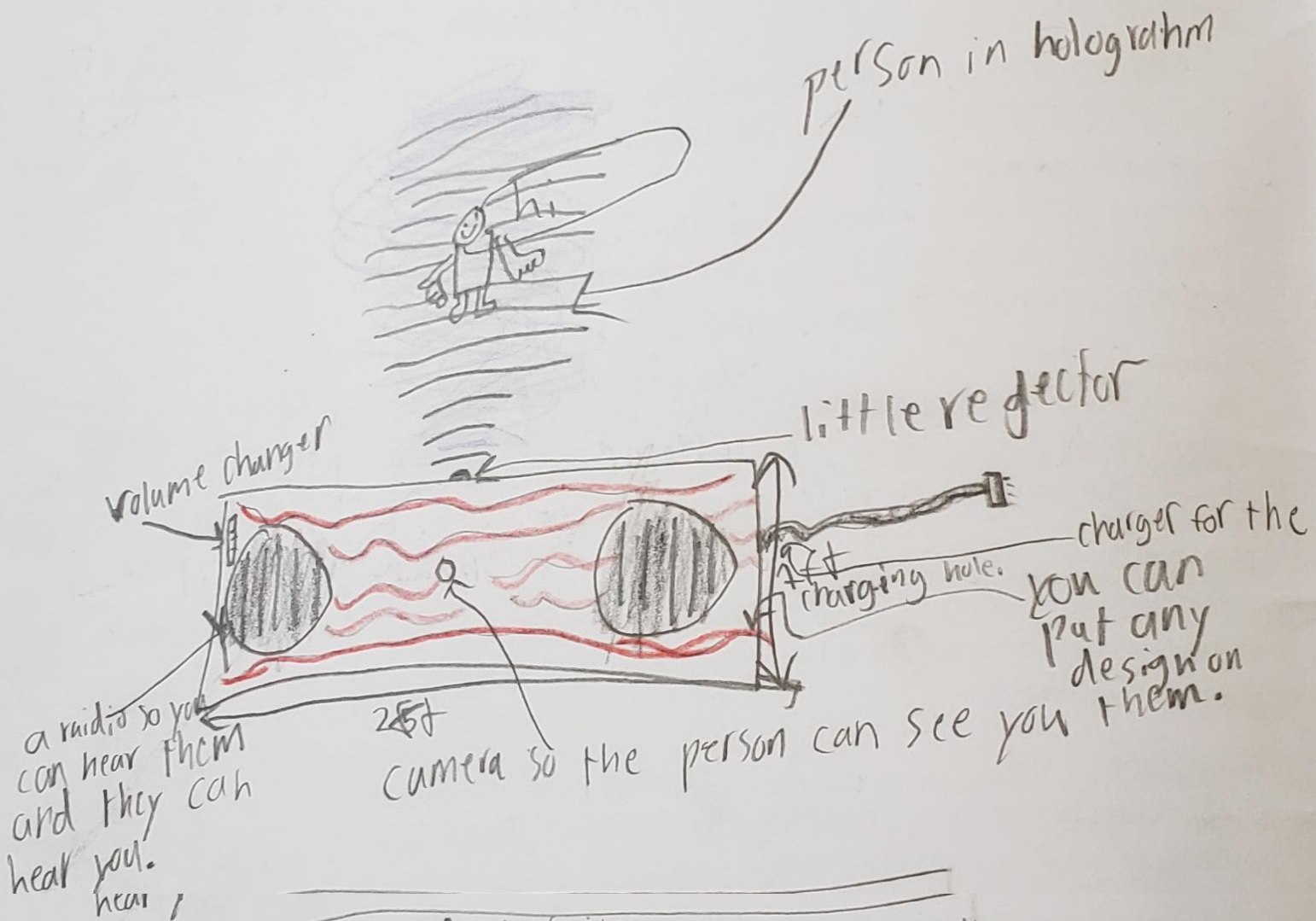
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Today in school I had  
a great idea...



Materials  
paint, computer chip, light bulb, electric  
coil wires, metal, sound recorders and a little  
wax.

The best thing that ever happened to me was people telling me I was  
doomed to failure. It set the stage to prove them all wrong.

-David Rabuka  
Founder, Redwood Biosciences

name	Jack	date	1/9/18	title	i-hologram	7
what made you think of this?	I thought that it is bad to look on the blue screen on your phone.					
I created this because	I thought that people are on there phones all the time calling each other and facetimeing. The screen is really bad for your eyes to. But this this doesn't have one it has a 3-D projector. On the left side there is a volume changer so it doesn't get too loud when the baby's sleeping. On the it has a charging hole so you can charge it when it's out of battery. On both sides there is sound projectors. That is my idea at school.					

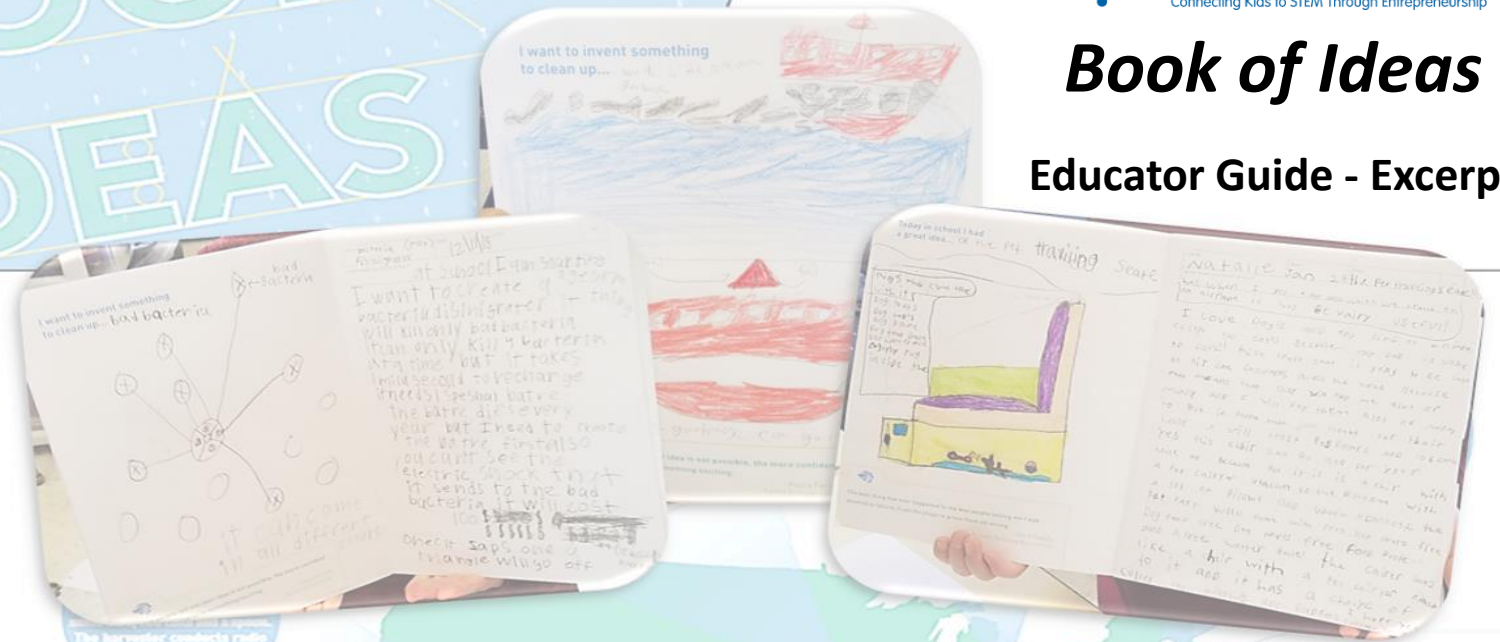
# BOOK OF IDEAS

Today in school I had a great idea...



## Book of Ideas

### Educator Guide - Excerpt



Kids around the country are inventing!

## Getting Started – The Educator Guide

The *Educator Guide* is **your resource** to engage your classroom in student-directed, inquiry-based discovery. We provide the tools and content designed to leverage your students' natural creativity and curiosity and **you decide what exact sequencing works best for your classroom**.

If you're already full of ideas and ready to dive right into using the *Book of Ideas* in your classroom, get to it!

If, on the other hand, you're not quite sure of what to do first, we have some suggestions below based on your answers to the following questions:

- What is the first thing you'd like to accomplish by using the *Book of Ideas* in your classroom?
- What best describes the learning and collaboration style among your students?

While there are almost as many answers to these questions as there are classrooms, we've selected some of the most common responses and put together a suggested strategy for introducing the *Book of Ideas* that fits well with for those scenarios. Each strategy includes:

- A few **preparation** activities to pick from—to get your students excited and ready for the *Book of Ideas*.
- An **introduction** lesson outline for when you first distribute and have students start working in their *Book of Ideas*.

## What is the first thing you'd like to accomplish by using the *Book of Ideas* in your classroom?

### 1. Integrate engineering concepts using innovation

*Preparation and introduction should focus on the engineering design process and the connection between engineering and the needs of the community.*

#### Preparation

- Ask students what they know about the engineering design process. Essential questions or blank engineering design process templates (in Appendix) can be used as discussion prompts.
- Read and discuss Barrett and JD's story about E Ink. Focus on identifying parts of the engineering design process throughout the story.

#### Introduction

- Hand out the *Books of Ideas* and read through the innovation prompts together as a class.
- Have students select one prompt they like and spend 5–10 minutes working on their idea alone.
- After 5–10 minutes have them partner up with someone and share their ideas. Have the partner provide some feedback. (Suggestion: Pick a couple of feedback phrases from the *Useful Phrases for Having Constructive Discussions* section in the [Appendix](#) and have them use one of those phrases to provide the feedback.)
- Repeat this process a few times and then gather the group together to discuss how the last 30–40 minutes have mapped to the engineering design process.

### 2. Encourage collaboration and communication in the classroom

*Preparation and introduction should emphasize the collaborative nature of invention and entrepreneurship.*

#### Preparation

- Show and discuss a video that emphasizes collaboration as critical to invention.
- Pick and discuss an entrepreneur quote that emphasizes collaboration.
- Participate in a warm-up challenge that focuses on collaboration to give students practice before they begin working with the *Book of Ideas*.

#### Introduction

- Hand out the *Books of Ideas* and read through the innovation prompts together as a class.
- Have students select one prompt they like and spend 5 minutes working on their idea alone.
- After 5 minutes have them partner up with someone **who picked the same prompt** and share their ideas. Have the partner provide some feedback. (Suggestion: Pick a couple of feedback phrases from the *Useful Phrases for Having Constructive Discussions* section in the Appendix (full guide) and have them use one of those phrases to provide the feedback.)
- Have students go back to working on their ideas but repeat the feedback exercise a few more times.
- After a few rounds gather everyone together and have them discuss their thoughts on getting feedback and working together.
- The next time students work in their Book of Ideas, have them work in teams of two or three to collaborate on an invention.

### 3. Engage students in writing, presenting, and other ELA learning objectives

*Preparation and introduction should help students connect with their ideas and find value and confidence in those ideas.*

#### Preparation

- Introduce students to innovation and the *Book of Ideas* via the Oli video. Discuss the value of all ideas—especially ones that seems different or “weird.”
- Watch the Ideo video (better for older students). Discuss all the different communication skills needed to develop an idea or invention (reading, writing, drawing, speaking and listening, etc.)
- Use the *Book of Ideas* as a reward incentive, have students build up their stamina to work independently on writing or drawing (depending on age) up to 5 minutes undistracted.

#### Introduction

- Hand out the *Books of Ideas* and read through the innovation prompts together as a class.
- Have students select one prompt they like and spend 5 minutes working on their idea alone.
- After 5 minutes have them partner up with someone and share their ideas. Have the partner provide some feedback. (Suggestion: Pick a couple of feedback phrases from the *Useful Phrases for Having Constructive Discussions* section in the Appendix (full guide) and have them use one of those phrases to provide the feedback.)
- Have the students continue working on their inventions with an end goal of presenting their inventions to the class. As students work towards their presentations, they should practice explaining their inventions to a partner (a new person) or in small groups. This is also a good opportunity to for students to continue practicing the giving and receiving of productive feedback.

## What best describes the collaboration style of your students?

### 1. Collaborative and creative but sometimes have trouble focusing

*Preparation and introduction should keep their level of excitement high while giving them some practice focusing.*

#### Preparation

- Introduce students to innovation and the *Book of Ideas* via the Oli video. Discuss the value of all ideas—especially ones that seems different or “weird.”
- Use the *Book of Ideas* as a reward incentive, have students build up their stamina to work independently on writing or drawing (depending on age) up to 5 minutes undistracted.

#### Introduction

- Hand out the *Books of Ideas* and read through the innovation prompts together as a class.
- Have students select one prompt they like and spend 5 minutes working on their idea alone.
- After 5 minutes have them partner up with someone and share their ideas. Have the partner provide some feedback. (Suggestion: Pick a couple of feedback phrases from the *Useful Phrases for Having Constructive Discussions* section in the [Appendix](#) and have them use one of those phrases to provide the feedback.)



## 2. Creative but quiet and not comfortable with group work

*Preparation and introduction should generate excitement for invention with an emphasis on the benefits of collaboration.*

### Preparation

- Show and discuss a video that emphasizes collaboration as critical to invention.
- Pick and discuss an entrepreneur quote that emphasizes collaboration.
- Participate in a warm-up challenge that focuses on collaboration to give students practice before they begin working with the *Book of Ideas*.

### Introduction

- Hand out the Books of Ideas and read through the innovation prompts together as a class.
- Have students select one prompt they like and spend 5 minutes working on their idea alone.
- After 5 minutes have them partner up with someone **who picked the same prompt** and share their ideas. Have the partner provide some feedback. (Suggestion: Pick a couple of feedback phrases from the *Useful Phrases for Having Constructive Discussions* section in the [Appendix](#) and have them use one of those phrases to provide the feedback.)
- Have students go back to working on their ideas but repeat the feedback exercise a few more times.
- After a few rounds gather everyone together and have them discuss their thoughts on getting feedback and working together.

## 3. Shy and lacking in self-confidence

*Preparation and introduction emphasize the possibilities and create an environment that is supportive of their ideas.*

### Preparation

- Introduce students to innovation and the Book of Ideas via the Oli videos.
- Pick and discuss the story of one or two of the young inventors features in the front of the book.

### Introduction

- Hand out the Books of Ideas and read through the innovation prompts together as a class.
- Have students select one prompt they like and spend 5 minutes working on their idea alone. **Join them in this activity with your own copy of the Book of Ideas.**
- (check with Annette on this one) After 5 minutes gather the students back together and ask if anyone is comfortable sharing their idea. If not, share your idea and ask for feedback. (Suggestion: Pick a couple of feedback phrases from the *Useful Phrases for Having Constructive Discussions* section in the [Appendix](#) and have them use one of those phrases to provide the feedback.)
- Have students go back to working on their ideas but repeat the feedback exercise a few more times.

Once students have started working in their *Book of Ideas*, you can take your lesson direction from their ideas and interests keeping in mind some of the overarching goals of working with the *Book of Ideas* include:

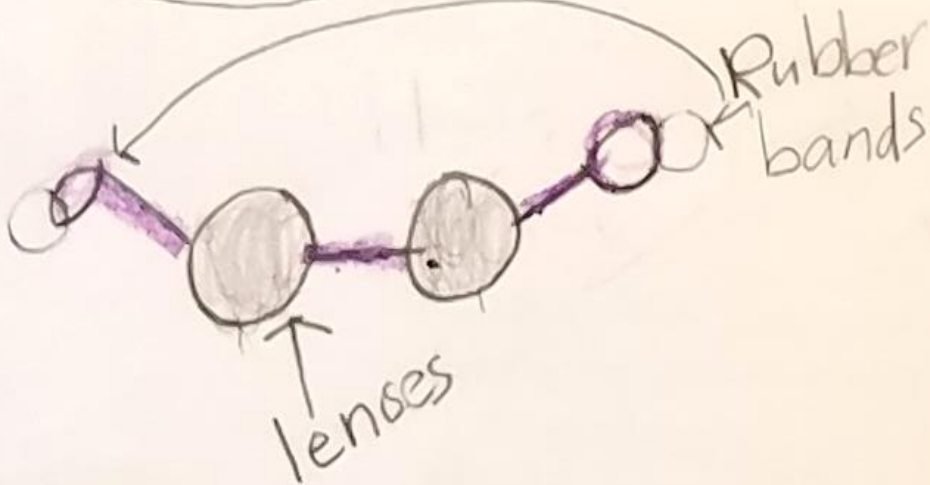
- Giving students a comfortable space to describe, explore, and discuss their ideas.
- Giving students a framework to practice the giving and receiving of constructive feedback.
- Giving students a forum to demonstrate their knowledge and express their capabilities—especially for those who struggle with traditional evaluation methods.

Today in school I had a great idea...

if I made and sold these I would donate the money to an animal shelter.



Come in any color.



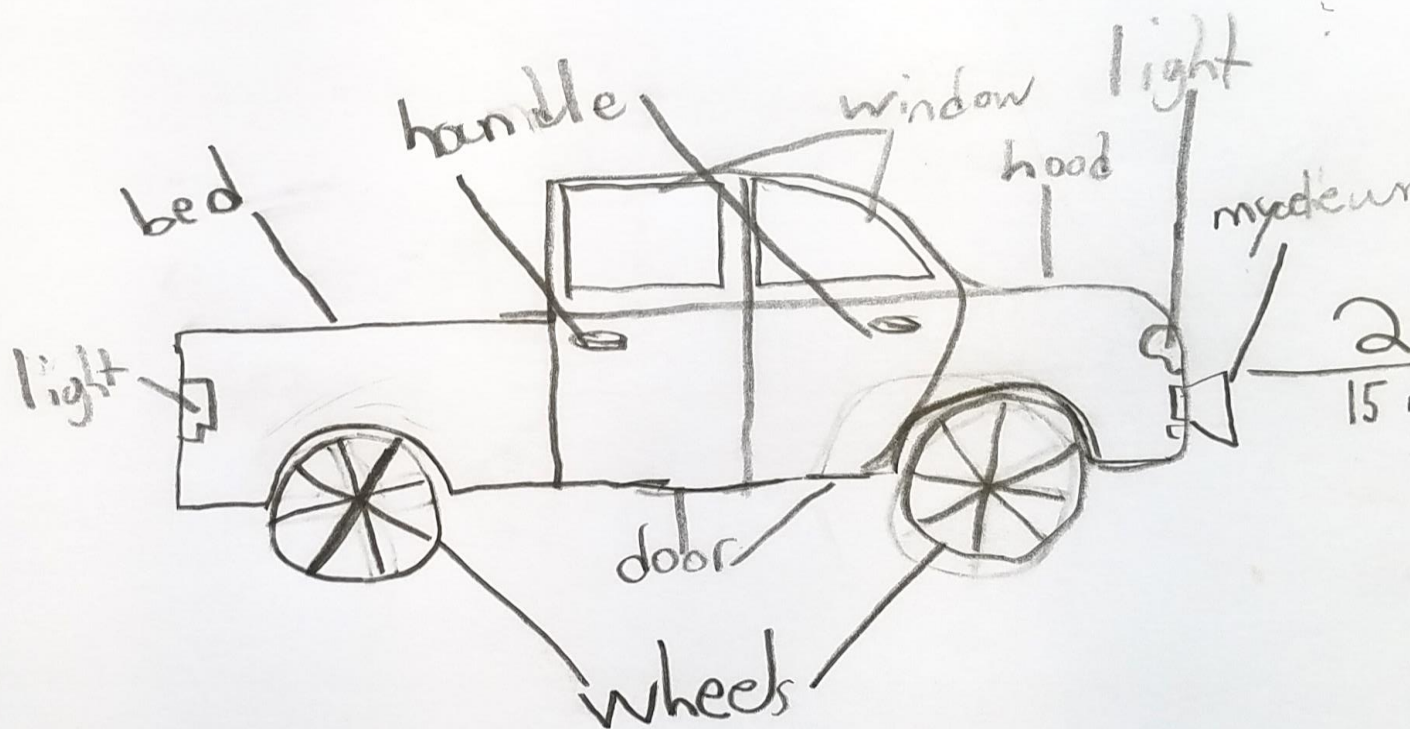
The best thing that ever happened to me was people telling me I was doomed to failure. It set the stage to prove them all wrong.

-David Rabuka  
Founder, Redwood Biosciences

name Cecilia	date 11/9/18	title dog glasses	7
what made you think of this? I always wanted to make something for an animal.			

I made dog glasses. They have a special lense like real glasses but have rubber bands that you put around the dog's ears, so they will stay on. They come in any color. They also have little sticky thing to help them stay on, and they can come off without hurting the dog. They come in designs. They would be different sizes so each dog could get a pair of glasses that would fit them just right. They would be like human glasses.

It would be fun to have something made out of mycelium



One of the things I've enjoyed the most about starting a company has been the teamwork. Progress is so much faster as a team, when everyone works alongside each other and contributes towards a common goal.

-Jean-Luc Fraikin  
Co-Founder & Chief Technical Officer, Spectradyne

name

Luca

date

2-27-19

title

17

what made you think of this?

Just thought it up

I wanted to invent this because I wanted to be safer when I was in the truck car.

When you are going 15 mph and you are 2 feet away the mycelium buffer will pop out and make the crash safer. I made the buffer out of mycelium because if a piece breaks off when you crash and no one picks it up it will not be littering.

I wish my house had a...



**Don't wait until you have all the answers because you will never have all the answers.**

-Zoe Barry  
Founder, ZappRx



**This could help keep our  
oceans clean and safe...**



**Every day I ask myself, 'How can I have the greatest positive impact in the world?' My answer is to lead the company I started so we can achieve 100% clean energy in my lifetime and power our lives with sunshine. What's your guiding question?**

**-Emily Kirsch  
Co-Founder & CEO, Powerhouse**





# What does that word mean?

Kids have been inventing for quite some time!

1824



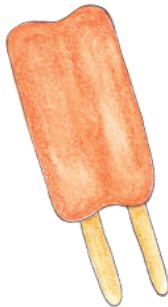
Braille

1873



Earmuff

1905



Popsicle

1921



Early television

1930



Trampoline

## Biotechnology ("Biotech")

Using living things to make useful products that help people.

## Brainstorming

Writing down a lot of ideas with people like your friends, teachers, and family.

## Cleantech

Using technology to make the planet better, like finding ways to prevent pollution and clean up garbage. Recycling is a kind of clean technology.

## Creative Thinking

Using your knowledge and things you learn in school to come up with a cool new idea. Brainstorming is a tool for helping you think creatively.

## Defining Goals

What do you want to achieve or accomplish? Write them down!

## Entrepreneur

Someone who turns ideas into a business and then gets to be their own boss! An entrepreneur hires people to work with them to run their business.

## Idea

Things that you think in your head that are cool and different than the way other people are thinking or doing things.

## Intellectual Property (IP)

Your creations or inventions can be protected by law, they are called your intellectual property. There are different ways you can protect your intellectual property.

You can apply for a **patent** to protect your new, useful invention. A patent tells everyone that this is your invention and they shouldn't use your invention without your permission. To get a patent, you need to file a patent application with a Government office. In America, it is called the U.S. Patent and Trademark Office. But don't wait too long! America uses a First Inventor To File system. If other people come up with the same invention as you, and they file their patent application first, they could get the patent instead of you!

A **trademark** can help you protect that really cool new word, symbol, name, or logo you came up with.

A **copyright** helps you protect your drawing, writing, film, poem, or music, so no one can copy it without your permission.

### **Inventor/Innovator**

A person who creates something new. These people come up with inventions because they find a new and better way to solve a problem or do something.

### **Maker**

Someone who makes cool things with their ideas. Instead of just thinking their ideas, a maker builds their ideas so they can show people what they're thinking. These people are very creative.

### **Material Science**

Designing new materials to make things by understanding the characteristics and uses of various materials, such as glass, plastics, and metals.

### **Teamwork**

Cooperation between many people. All members of a team are working to achieve a common goal. Collaboration is a kind of teamwork.



What will you invent?

2010

Oink-a-saurus App



2006

Magnetic Locker Paper



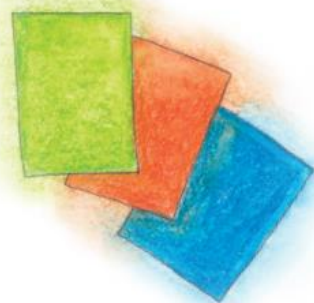
2002

Crayon Holder



1975

Glo-Sheet

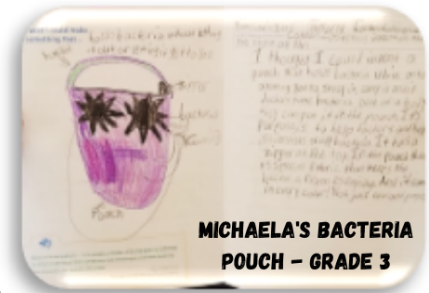




# USING INNOVATION & ENTREPRENEURSHIP TO SUPPORT YOUR TEACHERS

## SUPPORT WRITING DEVELOPMENT

- Innovation lets students at all writing levels focus on their ideas giving them a personal space & a purpose to write
- The Book of Ideas provides easy-to-implement differentiation with
  - Scaffolding for those who struggle with writing, and
  - Advanced writing suggestions for high capacity students and classes



## PROMOTE SCIENCE INSTRUCTION

- Innovation & entrepreneurship reposition science away from something only for "smart kids"—making it welcoming to students & teachers alike
- Innovation provides a space for ALL & helps students see the value in their OWN contributions to science
- The Book of Ideas increases classroom science content in a way that's easy to teach, fun for students & inexpensive for administrators to adopt

## EXPLORE STEM CAREERS

- Entrepreneurs and kid innovators help students from all backgrounds and learning abilities see a place for themselves in science & the larger STEM community
- Real-world applications & stories prompt classroom discussions around early career exploration
- Educator and lesson guides provide structure to makerspace sessions and make connections to core content learning objectives



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