

Design and Pitch: Challenges in STEM

Overview of Challenges

Challenge Image	Challenge Title	Description	Challenge Champion	Mathematical Topics
	<u>Operation Lifeline</u>	During natural disasters, delivering essential supplies like water, food, and medicine becomes a race against time. This challenge becomes even harder when the supplies have to be kept cold the whole time so that they don't spoil. In this Design & Pitch Challenge, you will find a workable solution for this important problem.	<u>Kris Ludwig</u> Scientist at the United States Geological Survey	3-D Figures; Evaluating Expressions
	<u>Power Me Up</u>	Gas-powered vehicles release harmful greenhouse gases and rely on a natural resource that will someday be gone. As a result, more and more people are buying electric vehicles. More electric vehicles means there is a need for more electric vehicle charging stations. This is an opportunity for savvy entrepreneurs. In this Design & Pitch Challenge, you will plan design a company that builds charging stations for electric vehicles.	<u>Kristin Vicari</u> Senior Chemical Engineer at Tesla	Analyzing Data; Equations; Ratios
	<u>Keep It Real</u>	Smartphones are everywhere. They make so many things easier. We can get a ride, order a pizza, and connect with people across the world with a single tap of the screen. But what happens when smartphones get in the way of communication? In this Design & Pitch Challenge, you will design a way to help people put down their phones and connect, face-to-face.	<u>Cardell Patillo</u> Executive Director of Mile High Kids	Collecting, Analyzing, and Representing Data
	<u>Building Algorithms</u>	In today's internet world, data on people's opinions are highly prized. One way to understand those opinions is to ask people to complete surveys. Researchers then create formulas, or algorithms, that analyze their survey responses in an automated process. Many successful businesses are built around algorithms. Your challenge is to build an algorithm that uses people's opinions to rate or rank something you care about and that can be the start of a successful business.	<u>Cathy Yee</u> CEO & Founder of Includive	Expressions and Equations; Percentages
	<u>Prototype to Profit</u>	Being an entrepreneur is about finding problems and turning them into opportunities. It's about inventing new solutions that create value for customers and using those solutions to make money, because even the best ideas need funding to succeed. At the heart of making money is finding the right business model type. The right business model type can be the difference between success and failure for an idea. And, sometimes, the business model type itself is the solution.	<u>Tyler Maloney</u> Materials Science Engineer & Entrepreneur	Representing and Solving Linear Functions
	<u>Erase Food Waste</u>	The way food looks is one indicator of whether it is safe to eat. But in the United States, we take this idea too far. Most grocery stores and restaurants won't offer produce to their customers that isn't perfectly shaped and colored, even if it is perfectly safe to eat. This results in a lot of food waste. In this Design & Pitch Challenge, you will design a food-related business that uses a sliding price scale to reduce food waste.	<u>Oscar Ekponimo</u> Founder & CEO of Chowberry	Percentages; Data Collection and Analysis
	<u>Fix It: Design for Community Impact</u>	In every community, there are problems that need solving or things that need improving. The most effective solutions are ones that meet the needs and desires of the community. If you pay attention and ask questions, you will notice what people want and what they need. Entrepreneurs don't wait on the sidelines for others to do the work. They jump in and use their energy and passion to make change happen. What can you fix in your community?	<u>Gitanjali Rao</u> Inventor & STEM Promoter	3-D Figures; Algebraic Expressions
	<u>Flashy Fashion</u>	Technology can now be integrated into clothes, bags, and wearable devices for both self-expression and health & safety applications. Designers' creativity is shining in fashion shows, and tools like LEDs are now accessible enough that anyone can learn to make wearable technology. How will your design light up the world?	<u>Kelsy Dominick</u> Designer & CEO of DiDomenico Design	Coordinate Plane; Transformations; Domain and Range
	<u>Pollution Solution</u>	Plastic is a big environmental problem. The world is becoming overwhelmed by plastic waste, especially plastic containers that hold consumer products. Can you imagine a solution to replace plastics that does not cause as much harm to the environment?	<u>Clifford Okoth Owino</u> Founder & CEO of Chemolex	Measuring 3-D Figures