

TIME

KID
of the
YEAR

SCIENTIST
AND INVENTOR

Gitanjali
Rao, 15



Invent Something to Help Others!

Gitanjali Rao,
Colorado

☀ Call to Action

Explore STEM learning & project-based opportunities. Invent something to help humanity. Gitanjali has partnered with UNICEF Voices of Youth to educate others on the importance of cyber-safety. Check out her blog www.voice-sofeyouth.org/campaign/your-world-reimag-ined

☀ Values

- Imagination
- Compassion
- Confidence
- Commitment
- Determination

☀ Lessons Learned

When you see problems or challenges, follow Gitanjali's example: use your skills and abilities to come up with solutions.

STEM skills can be used to create amazing advancements in society, and young people can help develop them.

STEM skills can be used in many ways to address a variety of problems in society.

The first public health crisis that Gitanjali sought to address scientifically was the water crisis in Flint, Michigan.

“When I saw the broadcast from Flint, I was appalled. I couldn’t believe how many kids my age were drinking lead poison every day.” So, in 2017, when she was just 13 years old, Gitanjali created Tethys to detect lead contamination in drinking water sources. With this invention, people can tell whether their drinking water has safe levels or not, in real time. For this invention, 3M awarded her a \$25,000 prize for winning their Young Scientist Challenge in 2017. She went on to create Epione, an app connected to a testing device that detects how addicted someone is, or isn’t, to opioids. And her newest venture, Kindly, is an app that helps parents, educators, and students detect potential bullying situations— and stop them before they happen.

☀ Language Arts

Write a research essay on an environmental issue affecting your community: First explain the problem. What is the source of the problem? How would you raise awareness about it? How would you tackle it?

Write the script for an imaginary conversation between a young inventor trying to obtain funding for his/her invention, and an investor. How would the inventor convince the businessman to invest in their invention? What points would the inventor need to make? What reservations/worries might the investor have? (For this exercise, think of two or three objections, no more). How would the inventor address these concerns?

Working in groups, design a game (it can be a board game, a trivia game, a card game, or even a computer game) that explains why one of Gitanjali’s inventions is important,

and how it can help people.

STEM Activities

Like many young leaders, Gitanjali found areas of her life that she wanted to improve, and in the process found a way to make a difference for all young people. Find one problem or issue facing young people in your community and create a plan of action to create a solution or gather resources/individuals to help you combat this problem.

In addition to Gitanjali's passion for solving issues of sustainability, she was equally passionate about getting support from adults in her community. Create a "pitch" to teachers, organizations or another group of adults in your community whose help you would need to execute the plan of action created in the previous activity.

As individuals, we go through our daily routines trying to make "sustainable choices." However, we rarely calculate how our activities and our choices directly impact our environment. Create a list of your daily activities (transportation used, food consumed, etc.). Then, with the guidance of an adult, calculate your approximate carbon footprint based on your list ([carbon footprint calculator](#)¹).

When the drinking water in Flint, Michigan became contaminated with lead, causing a major public health crisis, Gitanjali came up with the idea for Tethys, an Arduino-based device that made testing for lead in water cheap and reliable. Visit create.arduino.cc/projecthub² and select a project for the students to complete. Alternatively, allow the students, in groups or individually, to select a project themselves. For an added challenge, have students brainstorm ways to improve their project with customized features and functionalities.

Sustainability Innovations

Gitanjali's love for the environment and passion for invention allowed her to carry out her plans and transform her ideas into practical apps that can assist efforts to reduce waste and make them more sustainable. These apps strive to achieve goals similar to Gitanjali's:

- [Ecosia](#)³ This browser uses the money it receives from ads to help plant trees.
- [Earthhero](#)⁴ - **Climate Change:** This app allows you to track your personal carbon footprint, set green goals, and compare your emissions reduction with science-based recommendations. After compiling this information, you can share your findings with others.
- [Kora](#)⁵ Like Earthhero, Kora allows users to track their carbon footprint, but has the additional benefit of a system of rewards for changed behaviors. As you reduce your footprint, you can assist current sustainability projects, or purchase items from sustainable companies.

Reducing our carbon footprint is extremely important, but there are many other ways to create a more sustainable planet that need to also be addressed. Identify one other aspect of sustainable living that you would like to address as you design and develop your own app. Create a basic outline and goals for your idea.

Sustainability Career Pathways

Inventor: It's not easy to invent something, and it's even harder to get the world to notice. But a good idea can change the world.

Explore these [5 Steps to Inventing Something](#)⁶ and these [7 steps to becoming a full-time inventor](#)⁷.

Serial Entrepreneur: Gitanjali has created several wildly different, socially beneficial inventions. But to get a product or service into the world takes an integrated network of investors, marketers, and entrepreneurs. An entrepreneur is willing to take on risk in order to create a new business or product and get it into the hands of people. Think you want to be an entrepreneur? [Learn more here](#)⁸.

App Designer: From lead and addiction-level testing to creating an app to make the internet a kinder place, Gitanjali has explored many different paths. With so much of our time spent on the internet, apps that can improve our lives, and the world, can make a difference. Want to get into app design? [Here's a good starting point](#)⁹.

STEM Educator: Gitanjali received significant mentoring and support from the adults in her life. Consider a career in education: either as a [teacher](#)¹⁰, or in informal education, including museums and science centers, FabLabs, and nature centers.

1 <https://www.conservation.org/carbon-footprint-calculator#/>

2 <https://create.arduino.cc/projecthub>

3 <https://www.ecosia.org/?c=en>

4 <https://www.earthhero.org/>

5 <https://kora.app/>

6 <https://www.popularmechanics.com/technology/a5982/how-to-become-an-inventor-in-5-steps/>

7 <https://www.inc.com/stephen-key/so-you-think-you-want-to-be-a-full-time-inventor.html>

8 <https://hbr.org/2020/07/so-you-want-to-be-an-entrepreneur>

9 <https://www.appypic.com/how-to-create-an-app>

10 <https://zety.com/blog/how-to-become-a-teacher>

