

Inventors who began changing the world in their teens

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Medical advances:

[Adeeb Al-Balushi](#) was 9 years old when he invented a waterproof prosthetic leg that allowed his grandfather to swim. At the age of 10, he held seven scientific patents. His inventions are based on seeing family needs, or needs of others he learns about, and developing solutions for the problems they faced.

[Jack Andraka](#), at age 15, developed a promising early detection test for pancreatic, lung, and ovarian cancer that was cheap, effective, and non-invasive. He developed an interest in this when a close family friend died because his pancreatic cancer was not detected sooner. He won the Gordon E. Moore Award at the 2012 Intel International Science and Engineering Fair for his research.

[Anthony Halmon](#) was 17 when he invented the Thermofier: a thermometer and a pacifier combined in one device which makes it easy to measure a child's temperature. This practical invention came about because he needed to quickly and accurately determine his baby's temperature when she was ill.

[Kenneth Shinozuka](#) at age 15 invented a "smart sock" to keep his grandfather safe. He created a wireless system that is inserted into an Alzheimer patient's sock and alerts family members when the patient wanders away. A smartphone app (which he also designed) sets off a notification alarm.

[Samantha Marquez](#) by age 16 held 7 patents. Inspired by a project she worked on in her science class at age 11, she began her journey to create a new technology – the Celloidosome – that had the potential to engineer new tissue and repair organs. She spends much time advocating for more Hispanics and young women to go into STEM fields.

[Joshua Meier](#) at age 14 identified cells linked to the cell aging process, and which have potential for treating cancer by aging the cancer cells. He conducted ongoing medical research as the 16 year-old CEO of [Provita Pharmaceuticals](#). Now at Harvard, he wants to continue his stem cell research to find new causes and cures for disease.

[Krtin Nithiyandam](#) was 14 years old when he created an antibody that can enter the brain and attach to the specific proteins that appear during the first stage of Alzheimer's. Why? He says, *"I learnt about its cruel and devastating effects . . . and nobody should have to live with this debilitating disease."*

Environmental advances:

[Elif Bilgin](#) at age 16 developed a chemical process that turns banana peels into a non-decaying bioplastic that could help replace the need for petroleum and combat pollution. Curious about environmental issues, she was especially intrigued by a new idea – bioplastic as a solution. She became a software engineer at Google.

Azza Abdel Hamid Faiad, at age 16, developed a method of transforming plastic trash into biofuel, using a new high-yield catalyst to break down waste and produce products that can be converted into ethanol. Since plastic waste was a real problem in her native country of Egypt (as in most developing countries), Azza was motivated to find a solution.

Hannah Herbst developed a low-cost method of producing energy from ocean currents when she was 15. It converts the natural movements of the ocean into useable electricity. Her nine-year old pen pal in Ethiopia had written her about conditions in her hometown where electricity is sparse and unreliable. Hannah decided to develop a solution.

Ciara Judge, Émer Hickey and Sophie Healy, all 16, discovered a process for addressing problems with low-yield crops by pairing nitrogen-fixing bacteria with cereal crops. Their test crops germinated in half the time and had a drymass yield up to 74 percent greater than usual. The teens were driven to do this project by concern over the food crisis in Africa.

Gregory Martin when 14 discovered a faster and more economical way to boost the amount of lipids in algae by over 500% . . . potentially leading to much higher biofuel yields. His work centers around his desire to help the environment by developing new solutions for problems.

Boyan Slat at age 19 developed an Ocean Cleanup Array that could remove 7,250,000 tons of plastic waste from the world's oceans. He went on to found The Ocean Cleanup Foundation, a non-profit organization to develop his proposed technologies. Boyan became obsessed with finding a way of ridding the oceans of floating plastic when he went diving and saw more plastic bags than fish.

Richard Turere at age 11 invented a simple, low-cost, solar-powered device that safely scares hungry lions away from his family's goats, cows, and sheep in Kenya. He had been responsible for herding and safeguarding his family's cattle since age 9, but lion attacks were growing increasingly frequent. His solution also avoided hurting the lions.

Miranda Wang and Jeanny Yao as high school seniors identified a new bacterium to biodegrade plastic — specifically by breaking down phthalates, a harmful plasticizer currently used in a wide range of products. They became interested in this problem when they learned that plastic typically breaks down only every 5,000 years and creates serious environmental hazards. In 2015, they founded **BioCollection**, a Menlo Park, California, start-up focused on breaking down polyethylene waste and changing it into a usable commodity..

Taylor Wilson at age 14 built a working fusion reactor that raised the temperature of its core to 40 times as hot as the core of the sun. He regards nuclear fusion is a solution to our future energy needs and focuses on bringing electricity and state-of-the-art healthcare to the developing world. Taylor's interest was whetted by curiosity, a book on radioactivity that his grandmother gave him, and parents who let him indulge his passions. Not long his reactor invention, Wilson won \$50,000 at a science fair, for a device that can detect nuclear materials in cargo containers — a counter-terrorism innovation.

Source: Anne Jolly – *STEM By Design blog* – *MiddleWeb.com*

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