National Gallery for America’s Young Inventors
2008
SHIV GAGLANI

NAME: SHIV GAGLANI
AGE: 16
HOME: MELBOURNE BEACH, FL
SCHOOL: WEST SHORE JUNIOR SR HI SCHOOL
INVENTION: A MICROFABRICATING APPROACH TO TISSUE ENGINEERING

SHIV WAS BORN IN WINDHOEK, NAMIBIA. HIS FAMILY THEN MOVED TO SOUTH AFRICA WHERE HE LIVED FOR FIVE YEARS WHILE HIS FATHER WORKED AS A GENERAL PRACTITIONER, SPECIALIZING IN PEDIATRICS.

SHIV QUICKLY DISCOVERED HIS INTEREST IN SCIENCE WHEN HE FOLLOWED HIS FATHER TO WORK WITH CHILDREN IN THE PEDIATRIC UNIT. SHIV DEVELOPED AN INTEREST IN MEDICINE AND EMPATHY FOR OTHERS.

SHIV READ BOTH “POPULAR SCIENCE” AND “DISCOVER” BY READING THE ARTICLES “PRINT ME A PANCREAS PLEASE”. HIS LIFE REACHED A MAJOR TURNING POINT. THIS ARTICLE DESCRIBED NOVEL TISSUE ENGINEERING RESEARCH INVOLVING MODIFICATION OF OFF-THE-SHELF INKJET PRINTERS TO PRINT OUT LIVING CELLS IN A “SIXINK” SOLUTION.

SHIV WAS PERSISTENT IN TRYING TO CONTACT RESEARCHERS AT RUTGERS UNIVERSITY IN NEW JERSEY AND CLEMSON UNIVERSITY, WHERE HE WAS EVENTUALLY SUCCESSFUL IN REACHING MENTORS WHO WERE INSTRUMENTAL IN ADVANCING HIS OWN IDEAS.


THIS PAST SUMMER SHIV WENT TO JAPAN TO STUDY NANOTECHNOLOGY AND TISSUE ENGINEERING OUT OF NANOTUBES.

SHIV IS PRESENTLY A JUNIOR AT HARVARD WHERE HE IS STUDYING BIOMEDICAL ENGINEERING WITH A FOCUS ON STEM CELLS AND TISSUE ENGINEERING. HE HOPES TO MAKE A DIFFERENCE IN THE WORLD BY REGENERATING ORGANS.
Kaileigh Kirton

While working in the yard with her mom and dad, she often cleaned the flower beds. She put out...  

But "Eureka!" she remembered how she separated the shells from the sand at the beach using the little sister that comes with the bucket set.

Kaileigh’s family also does a lot of fishing. She saw her father, who goes commercial fishing, sort the fish. This idea added to her thought that maybe this could be the solution to the problem of separating with a shovel.

Kaileigh has many hobbies including softball, soccer, and fishing. She is now in the 6th grade, so it will be some time before she makes a decision for her future. However, the outdoors and invention will always be at the top of her list.
NAME: Michael Loy
AGE: 12
HOME: Portland, OR
SCHOOL: Deacon Episcopal School
INVENTION: Developing a novel pH buffer methodology to inhibit concrete corrosion

While working as a summer intern with a structural engineering company, Michael noticed the high costs of reparing concrete which suffered corrosion damage.

He did some research and found one reference to the effects of pH on corrosion of the rebar in concrete.

Michael designed a series of experiments where various amounts of basic buffers were added to reinforced concrete samples were exposed to high chloride and carbonic acid to simulate real world corrosion. Periodically, samples were tested for strength and other properties.

He found a buffer that improved the resistance to corrosion over the first year of testing. Before his invention will be accepted by the construction industry and building standards organizations, over 10 years of exposure testing will be needed.

This study won Michael 2nd place grand award in the 2008 Intel International Engineering and Science Fair: Materials Science and Biomedical.

After graduation from high school, Michael will study engineering at a West Coast college close to where he can ski occasionally. He also hopes to have time to enjoy playing his electric bass guitar.
Theresa Ann Oei

Name: Theresa Ann Oei
Age: 14
Home: Hermon, ME
School: East Catholic High School
Invention: USE OF SEASHELLS TO DETOXIFY LEAD-CONTAMINATED EFFLUENT AND GROUNDWATER

Theresa comes from a very rich cultural background. Her interests include reading classical literature, playing the piano, and most of all dancing. She was a ballerina with the Connecticut Concert Ballet where she danced the "Nutcracker". Theresa has also done Irish step dancing for 10 years and has competed nationally and internationally, receiving awards in Belfast, Ireland and Glasgow, Scotland.

Each summer Theresa and her family vacationed at Stone Harbor, NJ. It was there that she began to be interested in seashells. Her interest from a young age developed into research on magnesium carbonate to remove lead from water.

Her research on seashells was done at home, and her testing was sent to a lab in Florida where her water samples were checked for the amounts of lead contamination. There they use a scanning electron microscope to take photos of the seashells.


Theresa plans to attend college and to make a contribution to society through exploration, investigating, and doing research to help people and protect the environment.

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