MACGYVER ACADEMY

A DIY Workshop and Fabrication Studio

501(c)(3) Nonprofit Organization

Science • Technology • Engineering • Mathematics

ARE AMERICAN STUDENTS falling behind?

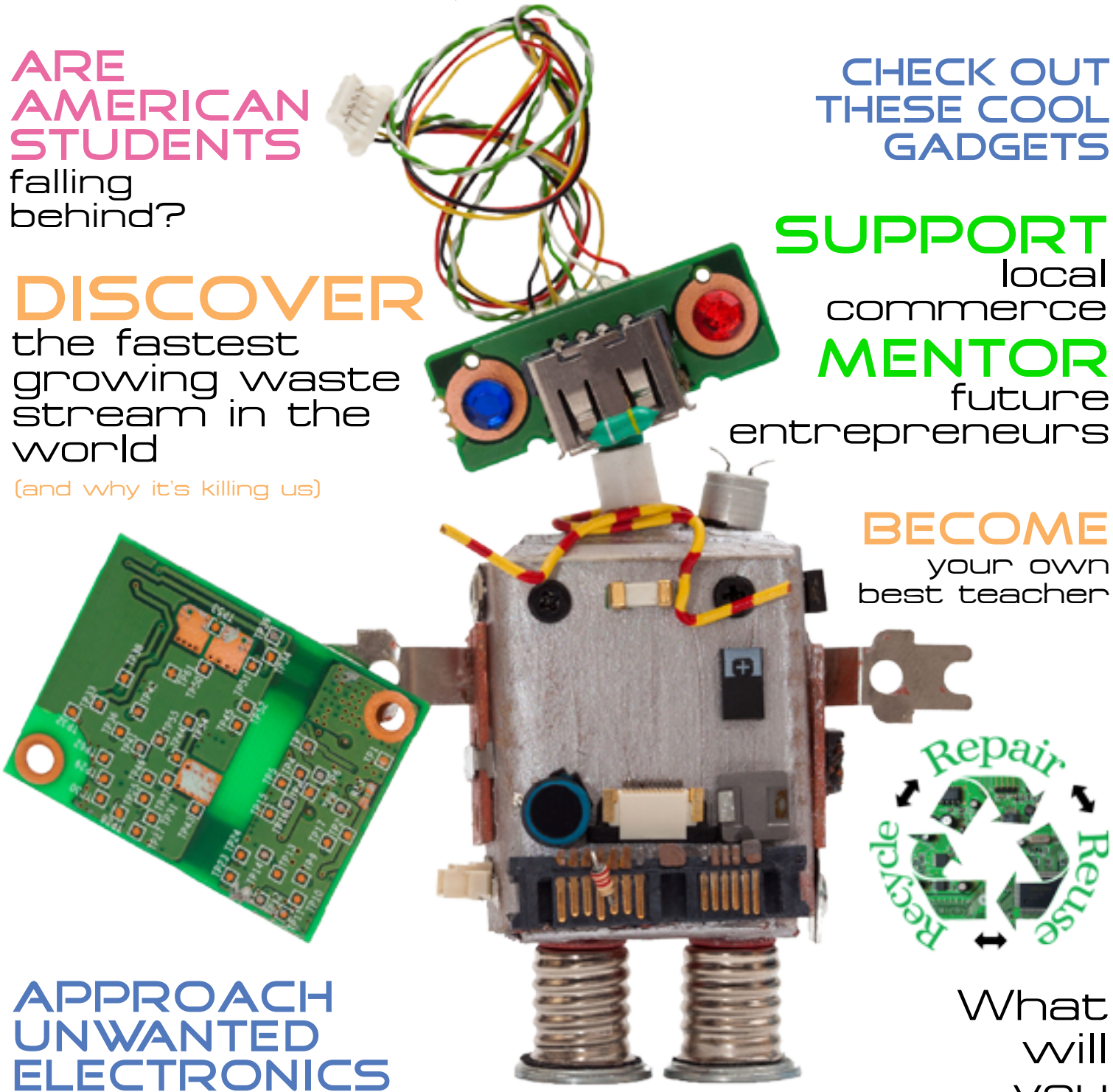
CHECK OUT THESE COOL GADGETS

SUPPORT local commerce

MENTOR future entrepreneurs

DISCOVER the fastest growing waste stream in the world

(and why it's killing us)



BECOME your own best teacher

APPROACH UNWANTED ELECTRONICS like the Native Americans did the Buffalo

What will you **MACGYVER?**

A bold new way of tackling our nation's STEM crisis

LETTER

from the founder

Please take a moment to imagine two bright and ambitious kids who find themselves growing up in different socioeconomic conditions and how this may potentially affect their lives. We all know the story. It's an age old tale that has played out countless times in every generation. It's the "haves" vs. the "have nots" theme, and most of us can identify real people we know who resemble these archetypes.

There's no denying that due to circumstance some children enjoy more opportunities and are presented with better choices than others. But of course nobody is intrinsically better than anyone else, and there are no natural born "bad guys" either. There are simply people trying to do the best they can to cope, survive, and prosper within their unique situations.

MacGyver Academy is an idea intended to nurture the talents and enable the desires of young inventors and entrepreneurs regardless of their family's financial predicaments. MacGyver Academy is hope! It's vision! A plan! A viable plan to build something truly special that just might have the power to create a better future for countless children who otherwise may feel paralyzed by circumstance and possibly never realize the true scope of their potential.

Now we're ready to make it a reality. But we cannot do it alone so we're seeking support on our mission. If you share our passion and feel inspired we would be honored to have you on board. Please join us on this unique journey, and together we can MacGyver the future of our local disadvantaged and at-risk youth!

-Roberto Cortes

The Environmental Protection Agency defines e-waste as used electronics that are nearing the end of their useful life, and are discarded, donated or given to a recycler.

Electronic Waste Crisis

In today's world the rate at which electronics become obsolete is truly mind blowing. This has made our lives easier and better in countless ways. However, an unfortunate consequence of this remarkable progress is our planet is quickly becoming overloaded with electronic waste.

With the assistance of e-waste drives and partnerships with local businesses, corporations, and organizations we are aiming to make safe disposal of unwanted

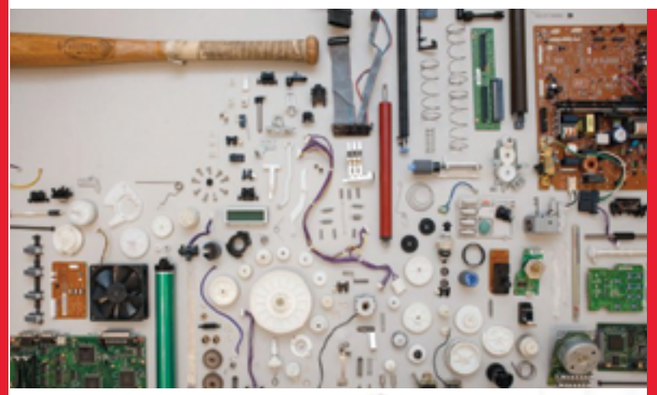
SOME FACTS ABOUT E-WASTE

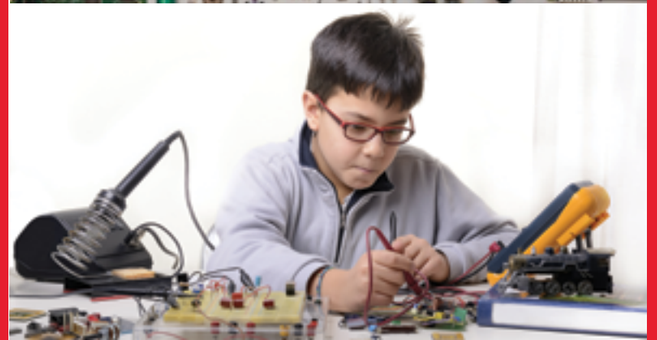
- E-waste is the fastest growing waste stream in the world.
- Just some of the hazardous substances found in e-waste include Arsenic, Chromium VI, Dioxins, Lead, and Mercury.
- 20 to 50 million tons of e-waste are disposed worldwide every year.
- In cell phones alone Americans dump over $60 million in gold and silver each year.
- Recycling 1 million laptops saves the energy equivalent to the electricity used by 3,657 U.S. homes in a year.
- It takes 530 lbs of fossil fuel, 48 lbs of chemicals, and 1.5 tons of water to manufacture one computer and monitor.
- Only 12.5% of the world's e-waste is currently recycled.

electronics simpler and more convenient for Las Vegas residents. This will not only help prevent toxic materials from ending up in landfills, it will provide the opportunity for young learners to acquire the materials and hands on education needed to become responsible citizens, innovative inventors, and young entrepreneurs.

Our goal is to approach unwanted electronics like the Native Americans did the buffalo. Unlike traditional recycling centers we won't simply process items to be broken down for raw materials. We plan to salvage the working components for new projects. For example, one obsolete inkjet printer headed for a landfill may contain multiple electric motors, pulleys, drive shafts, gears, rods, and lights. Obtaining these perfectly good parts online quickly adds up to a large sum of money but our participants will be taught how to disassemble unwanted electronics to recover these types of materials.

They will also learn to determine which items should be left as is and remarketed, which should be repaired and remarketed, and finally which should be recycled for materials recovery. As the old saying goes, one man's trash is another's treasure and we envision our program becoming a real world example of this idea.





In the end our society will be defined not only by what we create but by what we refuse to destroy.

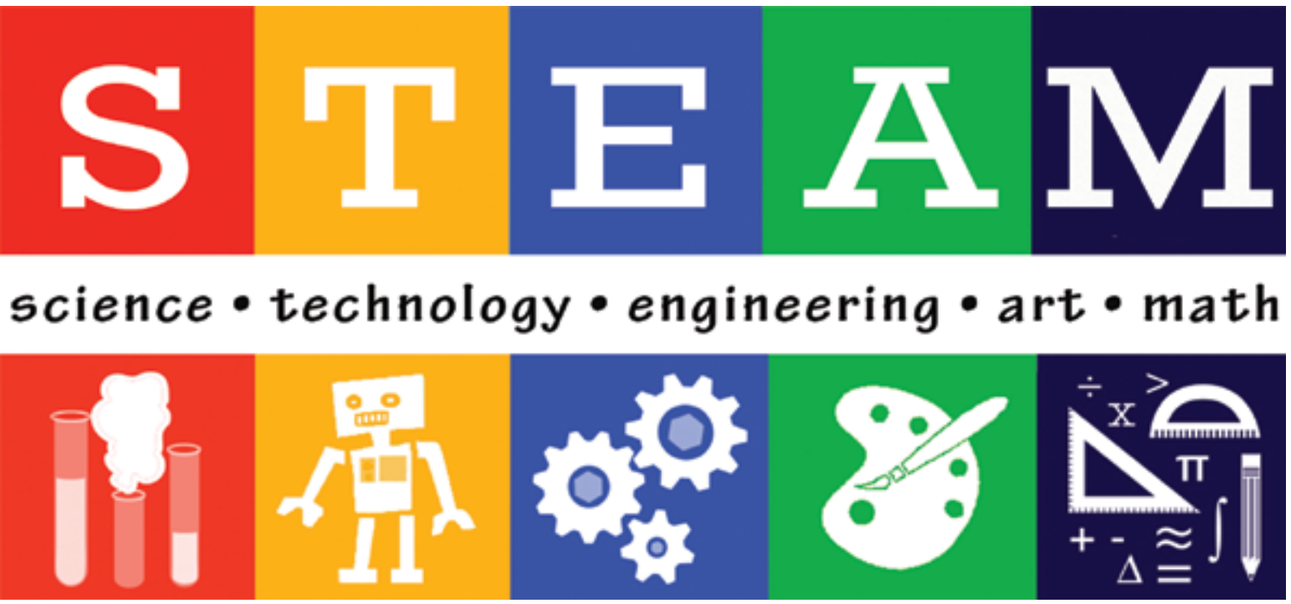
John C. Sawhill

STEM Education

Currently many of the top jobs in the U.S. are posted by employers who need to fill positions with individuals who hold a degree in science, technology, engineering or mathematics (STEM). Unfortunately, they increasingly find themselves with a shortage of qualified American applicants. Due to this America's public educators have been putting more of an emphasis on these areas.

Though this effort has yielded some results the facts still remain that according to the most recent scores from the Program for International Student Assessment, which is taken every 3 years by 15 year old students, America ranked 27th in science and 35th in math. This test also revealed problematic gender gaps with American males outperforming females in STEM subjects. Further, the poor scores of underprivileged minority students in this assessment were troubling. Everyone doesn't agree on the cause, solution or even if there truly is a STEM crisis. However, in our opinion as far as the Program for International Student Assessment scores are concerned, everyone should agree America can do better.

In the spirit of taking action and becoming part of the solution to a problem that concerns us, we're throwing our hats in the ring with a current goal to work with our local educators, parents, businesses, corporations, politicians, and like minded individuals to create an after-school program and interactive facility that assists STEM education on a local level.



MacGyver Academy's Land Fill Diversion Project

THE DIY ROCK TUMBLER

6 inch, ABS drain pipe with cap
Cordless Drill/Driver
PC CPU Cooling Fan 12v
Construction Waste Acrylic
Wires from Copy Machine
Printer Power Switch
Printer Power Cord and Plug
24V 2A Regulated Switching Power Supply
*Drok Lm2596 Adjustable Voltage Regulator
Copy Machine Transfer Rollers
Transfer Roller Bearing

Rock tumblers are machines used to smooth and polish rocks. They are a popular tool used by jewelry, craft, and lapidary hobbyists for producing tumbled stones.

*Optional item purchase for $7.95

Cool Stuff Made From Trash!

EWASTE COFFEE TABLE

Credit: https://mygaming.co.za/

Are you itching to innovate? Our plan provides everything you need to succeed. Here's some ideas to inspire you!

DIY BENCHTOP SOLDER SMOKE ABSORBER

DIY WIRELESS BLUETOOTH SPEAKER

Fostering Entrepreneurship

Key attributes business people and entrepreneurs commonly possess are personal initiative, determination, autonomy, and self-sufficiency. Exposure to mentors who model these characteristics and participation in learning experiences that promote their development are invaluable for children. Our goal is to provide these opportunities and ultimately encourage these aforementioned qualities in our participants through their involvement with the MacGyver Academy Store.

Initially this participant operated store will be online. Eventually, however, we will expand it into a local brick and mortar store as well. Part of our intention in doing this is to educate learners in business fundamentals and inspire their inner entrepreneur. Contributors will receive a portion of the profits raised from successfully marketing items they repair or create. The remaining proceeds will be utilized to help fund MacGyver Academy and continue to promote our mission.

ebay store

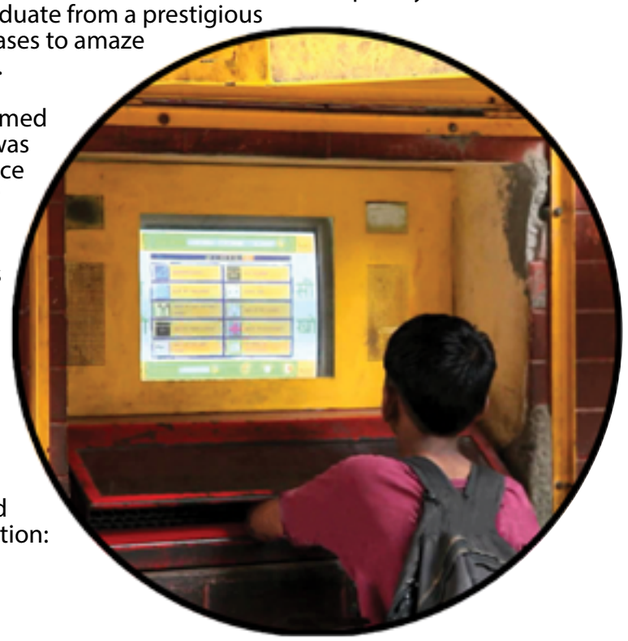
501(c)(3) Public Charity

children are great imitators. so give them something great to imitate.

Self Organized Learning Environments

By: Nicole Cortes

Often I joke that my husband Rob is the type of guy that can take two sticks and a rock and build a spaceship. When something malfunctions in our house he doesn't call a repair company and we rarely replace it. Instead he rummages through his bins and boxes and somehow from what appears like nothing more than clutter, plucks out the very thing needed to fix or in some cases completely rebuild the item. He has never been to trade school nor is he a graduate from a prestigious engineering or technological university, yet it never ceases to amaze me just what he is capable of inventing or repurposing.



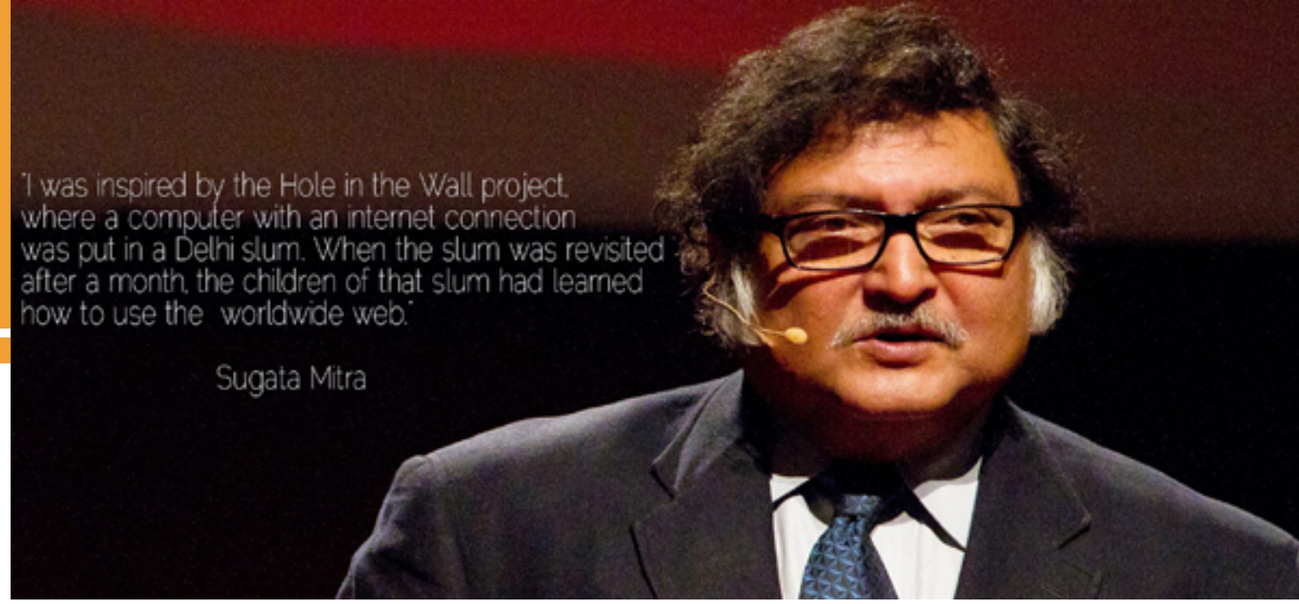
Early in our relationship he mystified me with what seemed like magical powers. But now I understand this ability was born from a combination of high mechanical intelligence and his nagging personal interest in learning how stuff works. In more recent years with the endless supply of people who actually have attended trade schools and prestigious universities on YouTube and other websites giving tutorials on virtually every subject a self-taught hack like my husband may ponder he has become a regular student at "YT Tech" (YouTube Technical institute), and is even more proficient in what he does.

This concept of open source learning was formally explored by Sugata Mitra, Professor of Educational Technology at Newcastle University, England who won the TED Prize in 2013 for his work related to literacy and education. Mitra began his process by posing this question:

> Could it be that knowing is obsolete?

Mitra maintains that our current educational system, much of which is comprised of rote learning, is no longer practical. He challenges us to consider that students memorizing and regurgitating information they could acquire in 15 seconds on the internet, rather than concentrating on more creative self-directed endeavors, may be as outmoded as a first generation iPhone.

Another provocative question Mitra has asked "Is education obsolete?"



> Is education obsolete?

His hypothesis stems from the notion that in a world where infinite information is available on the internet isn't it theoretically possible for people to become self-taught experts on any subject they choose? The data collected from his Hole in the Wall experiment suggests he may be onto something. And while abolishing teachers and traditional learning institutions is obviously not a good plan, it would be remiss to ignore that Mitra's SOLE's or Self-Organized Learning Environments do seem to have enormous potential to inspire students toward engaged learning and innovative thinking. Therefore, they are positive additions to any curriculum.

We are excited by this concept and have been successfully utilizing self-directed learning strategies to master subjects we're interested in yet not formally trained in throughout our adult lives. At MacGyver Academy we intend to create SOLE's and implement Mitra's concept of minimally invasive education by providing our participants with the proper resources, safe environment, and encouragement needed to become their own best teachers!

Our Vision

Our proposal to address electronic waste overload and STEM education is to create a state of the art facility that raises social awareness, provides our local youth with a productive and fun place to spend time, promotes 21st century skills, and utilizes Self Organized Learning Environments (SOLE's).

The space will be a fully equipped interactive workshop where members can learn, innovate, and MacGyver in a safe and supportive environment at no monetary cost. The reason we'll be able to offer this is because we plan to utilize others unwanted electronics as a constant revenue stream. This will help community members dispose of their trash in good conscience, improve environmental conditions, and provide a unique learning opportunity for young students.

Although our program will be free of charge we strongly believe requiring students to earn access to the facility by volunteering their time performing activities such as helping at electronic waste drives and then disassembling, sorting, identifying, and marketing collected electronics for our MacGyver Academy Store will provide tremendous benefits for them. Our intention in doing this is to teach adolescents business fundamentals, life skills, responsibility, and work ethic. Further, these types of volunteer opportunities will also serve as informal lessons in electronics. There's nothing like deconstructing and handling an item's individual parts to understand how it functions as a whole.

Our ideal demographic is comprised of kids who tear their toys and household appliances apart to satisfy their curiosity in discovering how they work. However, we also hope to inspire students who do not currently have an interest in STEM subjects to realize how exciting these fields can be. Our goal is to create a work study

environment where learners can master STEM while simultaneously practicing social responsibility, and honing the entrepreneurial mindset often necessary for a successful career.

All students will be encouraged to register. However, we're putting a special emphasis on the importance of enabling at-risk and disadvantaged students to attend MacGyver Academy. We understand that many parents from lower income neighborhoods cannot pay the costly tuitions existing STEM programs often charge. We also know the tools and materials children need to explore their inventive ideas or pursue hobbies such as robotics are often unobtainable and we intend to help improve this deficit.

"There are no rules.
That is how art is born,
how breakthroughs happen.
Go against the rules or ignore the rules.
That is what invention is about."

Helen Frankenthaler

About the Founder

Roberto Cortes, the fourth child of Puerto Rican migrants, spent his childhood in rural upstate New York. From a young age he had a natural interest in electronics, engineering, and technology. Because he would often disassemble household appliances to discover how they functioned and craft inventive gizmos from everyday items, he earned the nickname "gadget master" among friends.

Perhaps out of necessity, Rob developed an early aptitude for self sufficiency. By the age of 8, on Saturdays, he was battling thick bushes to harvest raspberries which he sold on Sundays to fellow churchgoers. And at age 10, each morning before school, Rob traveled miles on his bicycle to complete his paper route.

When he was 12 he conceptualized a plan for a firearm that could shoot around corners (a weapon that actually exists today). And at 14 he suggested a massive Public Works project to build an underground aqueduct. This imagined aqueduct would transport seawater from the California Coast to Death Valley solely through the force of gravity. Upon arrival the saltwater would be distributed into holding tanks and then desalinated through evaporation by giant mirrors to focus the sun's rays.

Although Rob remained consistently interested in engineering, technology, and business his parents struggled financially and he lacked means and access to the mentors that would encourage him in these areas. Conversely, he held after school jobs as a dishwasher, prep cook, and assistant butcher to help out at home.

During Rob's senior year of high school his father informed him if he wished to attend college he would have to pay for it on his own. At this time America was at the brink of war and Rob had a desire to serve his country as a special operations soldier. He was excited to learn that with determined focus those who possessed enough mental fortitude and physical stamina could become an Airborne Ranger in under a year. Because of this Rob decided to enlist in the Army.

Shortly after joining he began a rigorous succession of challenges such as Basic Training, Advanced Infantry Training, Airborne School, and finally the Ranger Indoctrination Program. At the end of this process the best prospects of the few who completed the program were assigned to the U.S. Army's 75th Ranger Regiment. Rob was among those selected and earned the honor to wear the coveted Ranger Beret.

In the Army Rob's pension for problem solving problems remained. When he was short on cash yet wanting to see family on the holidays, he decided to reserve a 10 passenger van. Then he sold round trip tickets to fellow soldiers who lived near his home state. Rob successfully covered his expenses and made it possible for nine other soldiers to see their families that Christmas.

Later, as an honorably discharged veteran, he decided to move to Las Vegas and go to the Rio Hotel and apply for the position of bar apprentice. He was hired and in less than a year was promoted to bartender.

Soon after he noticed the containers many servers carried to hold straws, napkins, and money were unpractical and unsanitary. He began taking pictures of the systems his coworkers had concocted and interviewing experienced servers to learn their needs for an ideal tray organizer. He then designed the Carry All Caddy, and had the product manufactured and successfully marketed it himself. It has been available for over 15 years, and currently can be purchased at restaurant supply stores and on Ebay.

After gaining some financial security Rob decided it was time to focus on furthering his education. He enrolled at the CSN College of Southern Nevada and earned his Associates in Business. Soon after he transferred to UNLV to pursue his Bachelors in Business.

Rob has always known his interest in engineering, technology, and entrepreneurship is shared by many. He also understands his childhood reality was not unique, and that countless driven kids find themselves in situations where due to personal adversities they cannot freely follow their passions.

This caused him to wonder how many children are not fully utilizing their creative minds, and is ultimately what led him to create MacGyver Academy. He believes access to a program like it may have had the power to change the trajectory of his life. He is thrilled with the opportunity to provide personal mentorship and cost free access to MacGyver Academy for Southern Nevada's youth!

"Every kid is ONE caring adult away form being a success story."

-Josh Shipp

"It is not what you do for your children, but what you have taught them to do for themselves that will make them successful human beings."

-Ann Landers

MacGyver Academy's purpose is to inspire education in entrepreneurship, science, technology, art, and engineering by combining e-waste recycling with an after school research and development learning facility.

DONATE

We utilize others' unwanted electronics to fund our program and supply members with materials needed to explore STEAM subjects. This concept also benefits our environment because it diverts dangerous electronic waste from the world's landfills. We are interested in any items with cords or that take batteries: computers, cell phones, tools, toys, flat screen televisions, etc.

VOLUNTEER

We are always looking for teachers, electrical engineers, hobbyists, hackers, designers, entrepreneurs, artists, marketers, and business people to join our team. If you possess expertise in any of these areas or have a desire to mentor and encourage young learners while simultaneously working to tackle an enormous environmental problem we would be thrilled to have you on board.

PARTNER

MacGyver Academy is the brainchild of a man who believes access to a program like it may have changed the trajectory of his life. It's a plan intended to nurture the talents and enable the desires of young inventors and entrepreneurs regardless of their family's financial circumstances. We are seeking support from local businesses and organizations on this mission. If you feel inspired please partner with us and together we can macgyver the future of our disadvantaged and at-risk-youth.

LEARN

Our program assists participants in developing self confidence, work ethic, and the 21st century skills today's employers are seeking. Our research and development facility, online and brick and mortar stores, green initiatives, and self-organized-learning-environments (SOLE's) will provide members authentic learning experiences designed to enhance their understanding of STEAM subjects, entrepreneurship, social responsibility, self sufficiency, and cooperation.

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