

Makerspace Playbook Site Survey: Geekbus, operated by SASTEMIC

March 2015



CONTACT INFORMATION

Name: Mark Barnett

Title: Director of STEM Programs

Personal social media: https://twitter.com/Maker_Mark

ORGANIZATION

Organization Name: Geekbus, operated by SASTEMIC

How would you describe your organization type (library, museum, school, community organization, etc.)? The Geekbus is operated by SASTEMIC, which is a youth-serving and STEM-advocacy nonprofit organization. SASTEMIC operates several STEM education programs, such as FIRST Robotics and CyberPatriot as well as the Geekbus.

Organization website: <http://www.geekbus.com/> and <http://sastemic.org/>

Organization social media links:
<https://www.facebook.com/therealgeekbus>
<https://instagram.com/therealgeekbus/>

Blog and/or site most related to programming, making: <http://www.geekbus.com/>

Organization news/publicity links:

<http://www.bizjournals.com/sanantonio/blog/morning-edition/2015/03/geekbus-gets-fresh-infusion-of-support-from-tesoro.html>

<http://therivardreport.com/return-geekbus/>

<http://www.bizjournals.com/sanantonio/blog/2014/01/geekdom-donates-its-geekbus-to.html>

Location (city, state): San Antonio, Texas

Is your organization rural, urban, or suburban?

We travel with the bus primarily in San Antonio, but we operate about a 300-mile radius including urban, suburban, and rural areas.

Is your space and/or elements of your programming mobile? Elaborate, if necessary.

The entire Geekbus operation is mobile and we travel primarily to schools but also travel to libraries, community centers, and attend public outreach events like Maker Faire.

Target audience(s): Our target audience is K–12th grade students and we tend to do more work with 4th-8th grade. During our outreach programs we see all ages.

Annual budget (indicate if public or not public): \$240,000

Percentage free and reduced lunch served (if known): 72%

Access: Is your organization open to public, age restricted (elaborate below), membership-based, free, and/or admission required? Are there specific groups that you serve?

The Geekbus operates on a daily basis at schools, where we charge \$1,000 a day with a reduced cost to Title 1 Schools (or equivalent). Each month we also attend 2–3 free events such as science fairs, community awareness events, or school science nights.

Tell us about your organization. What distinguishes you from others?

The Geekbus is a one-of-a-kind mobile makerspace that has grown from one man and bus to a staff of five working daily and traveling the State of Texas offering STEM and Maker programs to schools and community centers.

MAKING AND CORE VALUES

What is your mission statement?

The Geekbus falls under the mission of SASTEMIC:

SASTEMIC is a San Antonio-based 501c3 advocacy group and connectory for Science, Technology, Engineering, and Math (STEM). We are “the go-to organization for STEM in San Antonio.” Our mission is to advance STEM education and economic development to bolster the connections between K–12, college, industry, and government for the San Antonio area.

What does it mean to “make” in your space/organization?

Our staff considers themselves makers and all make in one way or another. Our maker programs that are offered by the Geekbus teach a concept and then we give time for students to explore and make with that concept.

How does the above relate (or not relate) to your core values?

One of the things that we always share with students is career opportunities and higher education options in the given field that we are discussing.

What forms of making (all creative endeavors) occur?

- Computer Programming
- Robotics
- 3D Printing
- Circuit design, soft circuits
- Game Design
- Prototyping

Are you influenced by any particular pedagogies (approaches to learning)?

All of the Geekbus standard programs use Project-Based Learning as a framework of learning. We also offer professional development to educators about Project-Based Learning.

What are some good examples of especially powerful/ ambitious/successful making experiences?

Our most exciting examples come from the summer when we offer weeklong programs called Maker Camp. During Maker Camp students get to create custom game controllers, make artbots, develop their own projects, learn to solder, make a soft circuit, and much more.

GOALS

What are the goals of the programming and experiences provided?

Our main goal is to inspire students to want to learn more and then provide them with tools, skills, and resources to go further.

How do your environment, tools, and materials reflect these goals?


Almost everything that we use is open source or free to use.

How do you know when you’ve met your goals? What are your metrics of success?

We track data about our students such as age, socioeconomic level, and gender. We also measure interest, self-identification, and engagement using an instrument derived from a Society of Women Engineers study.

Disagree 1 2 3 4 5 Agree

Today's Geekbus visit has inspired me, and I want to learn more about STEM



Activity _____

After today's Geekbus visit, I know more about technology and engineering careers than I did before.

Disagree 1 2 3 4 5 Agree

Overall, today's Geekbus activity was engaging and exciting.

Disagree 1 2 3 4 5 Agree

After today's Geekbus visit, I know more about technology and engineering.

Disagree 1 2 3 4 5 Agree

What are your plans and hopes for the future of your space and programming?
Our most immediate goal is to launch Geekbus number 2 that will travel nationally.

TOOLS

What are your most frequently used and commonly available tools?

Laptops, hand tools, 3D printers, soldering irons, Raspberry Pis, Arduinos, Legos, cardboard, duct tape, and misc. circuitry.

List any special tools that require supervision, training, and/or certification.
None.

What are the favorite tools (most popular/most desired, even if you don't have many, or just one)?
Our laptops are the most commonly used tools. We use them for video game design and robotics.

Are there any tools that go largely unused, or that are no longer provided? Reasons?
None.

COLLABORATION

What are some of the institutions and organizations that are sources of inspiration, support, and influence?

The Maker Education Initiative is always a source of inspiration and support for us. We are also inspired by NotImpossible Labs, Enabling the Future, Hackaday, Girlstart, Hacakidema, Make, Edutopia, Sparkfun, Adafruit, and I'm sure there are others.

Describe any local, national, and global partnerships and collaborations.

Locally we partner with school districts, libraries, and after-school clubs to provide services. Our funding partnerships include Tesoro, Rackspace, Geekdom, Cognizant, and the 80/20 Foundation.

Our collaborative partners include the Maker Education Initiative, Skillpoint Alliance, the City of San Antonio, and Bexar County.

SPACES AND ENVIRONMENT

In what physical places does making happen in your organization? A single dedicated space, multiple dedicated spaces, general use areas, a workshop (metal, wood, sewing, etc), outdoors, a theater, a music studio, an art studio? Everywhere? Somewhere else?

The Geekbus is our space, but because it can only hold 15–18 people at a time, we also use space outside of the bus or request space at the host location. When we provide service at a school, we request to use the library to set up equipment. A majority of the time that students spend with us is actually in the library, then students get a tour of the bus, which lasts about 20 minutes.

How are the spaces, tools, and materials organized?

On the bus, much of the equipment is stored in the under cabin. The main hull of the bus is bench style seating with monitors on one wall. The rear room of the bus has two large workbenches outfitted with hand tools, soldering irons, and 3D printers.

How large is the space(s) where making happens?

In the bus we only have the rear area to work on projects, which is an 8'x8' space. Outside of the bus we set up folding tables in a 20'x10' space. We also use space at our event host, which is usually a school library.

Please describe how your site and makerspace(s) are staffed, including numbers of full and part-time staff and volunteers.

We are currently a staff of 5:

Director of STEM Programs, who oversees the operations, writes curriculum, develops partnerships, writes grants, and occasionally goes out with the bus.

Program Manager, who operates logistics, communication, advertising, billing, invoicing, follow-up, data collection, and grant reporting.

Geekbus Facilitators (2), who drive, operate and teach programs on the bus.

AmeriCorps VISTA member, who helps spread awareness of our work, helps to foster relationships with partners, social media, and spreading the Maker Movement to other local organizations.

First impressions of space(s):

Ideally, when participants first enter the Geekbus, they see flashing colorful lights emanating from within. They hear the sound of electronic music vibrating from the subwoofers. They feel excited to be able to go in and see what is going on. They experience a presentation and hands-on learning experience about robotics, computer programming, or 3D printing. They leave with wonder, inspiration, and a desire to learn more.

Describe your approaches and priorities in creating environments for making/learning.

Students typically start with us in a library or community space and we typically serve 30 students at a time. Groups of 15 are then taken out to the Geekbus for a 20-minute activity. We always start with a welcome and talk about what and why we are learning today. We also make sure to provide 45 minutes to 1 hour of time for students to work on a given project.

PROGRAMMING

Describe the kinds of programming offered.

We provide a menu for schools to choose from

- 3D Printing
- Video Game Design
- Robotics
- Renewable Energy
- Python Computer Programming with Raspberry Pi
- Hardware Engineering and Prototyping
- Maker Camp

See Geekbus.com for descriptions of each.

How did your space and programming get started?

We started out as a summer makerspace located in an art museum and provided 12 weeks of Maker Camp. Once the summer was over, we started looking for a new place and stumbled upon an opportunity to go mobile. We were very fortunate to have received a bus from our sponsors Geekdom and Rackspace Hosting. We spruced up the bus with the tools and equipment from the makerspace and hit the road!

How do you decide on/design/ make possible the space and components of the program?

All of our current programs were designed by staff and piloted with small groups. We always make sure that our programs can easily accommodate 30 students and can be done in 2.5 hours, with the exception of Maker Camp, where we have a full week.

How has your environment and programming evolved? What has worked well, and why? What has changed? What could still be improved?

We constantly seek to improve our programs by taking suggestions from students, teachers, parents, and from the Maker community.

EQUITY AND ACCESSIBILITY

Are there segments of the population that you hope to serve better?

We intentionally seek to provide programs to underserved populations, including girls, students at risk of never graduating, and students in low socioeconomic areas. 72% of our work is done with these groups.

What strategies do you employ to help increase the accessibility of your space/program to all learners?

We seek grants that allow us to offer low-cost programs to Title 1 schools and we work with the city, county, and school districts to formalize partnerships.

What has worked well? What has been the greatest challenge?

Working directly with school districts has been very successful for us and allows us to provide more learning opportunities. The greatest challenge continues to be fundraising. We operate on a budget that is 60% grant funded, which means that we are constantly raising money and writing grants.