Annual Report 2014

i-Trek

I Turn Research into Empowerment and Knowledge

i-Trek

www.i-Trek.org

Message From Our President

On October 2nd, i-Trek celebrated its one-year anniversary! In one year we have made significant strides thanks to the hard work of our volunteers and the support of our sponsors. Here are just a few examples:

- Our pilot program was a success. The Trekkers developed a coral health scale and hope to be able to crowd source data from around the world to find unhealthy coral. Your support made it possible for us to pay for housing, transportation, research materials and training for our Trekkers. If you want to learn more, please check out the video here.
- We attended several events to promote i-Trek, including college fairs, the African American Festival and an entrepreneurial boot camp. Each of these events allowed us to make contacts, introduce people to i-Trek and recruit students.
- We spoke at our first research event. In September we presented our work at the National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChE) conference.
- We had fun engaging and learning with younger students. i-Trek spent several weeks interacting with the younger students and getting them excited about STEM. You can read more about this initiative here.
- I was featured on the MIT homepage. This article, found here, was great for bringing publicity to i-Trek.

As you can see, we have been busy. We are extremely grateful for your support and hope you will continue to support i-Trek in the future.

Thanks for your support,

Niaja Farve

Mission

In order to address the lack of diversity among STEM (science, technology, engineering and math) degree recipients, i-Trek (I Turn Research into Empowerment and Knowledge) has developed a platform that aims to provide underserved and underrepresented students with the skills and resources necessary to succeed in STEM undergraduate and graduate degree programs. The underrepresented and underserved communities include students of lower income, women, and minorities who often face obstacles in obtaining equal support or access to the resources required for success in STEM. It is through community outreach and the Trek Mentorship Program that i-Trek aims to encourage a high level of interest in STEM and create a pipeline for increased participation in those areas of study.

2014 Trekker Collecting Samples

Accomplishments

2014 Pilot Trek

The 2014 Trekkers chose to pursue a research project that attempted to define a coral reef health scale, entitled "The i-Trek Global Coral Health Survey", that can be used by anyone to evaluate and log the health of coral reefs. While other scales require highly qualified users and equipment, only easily obtainable materials would be needed to evaluate health with this scale. To determine the health of coral using the Global Health Survey, a user would only need to collect water samples to be tested with pH meters and salinity meters and observe the coral and its surroundings. The total costs for materials are less that $20.

The data collection portion of the i-Trek pilot program took place during the first two weeks of June 2014. This portion of the program was meant to facilitate the bulk of the research project proposed by the undergraduate student participants, or Trekkers, and engage them in career development, community service and networking opportunities. To see what a Trek is about, check out the video below and read the day-to-day depiction of the Trek.

Overall, the program proved to be full of learning opportunities. Each Trekker was able to gain new skills and improve on others. They left the program understanding how they can take initiative to find and create opportunities that will help them progress toward their research and professional goals. The funding provided by the Innovation Fund helped make the program a huge success.

A day-by-day breakdown of the Trek can be found here.

Kit Deployment

Currently, there is a lack of qualified STEM professionals and even more so a lack of diversity in that current pool. With the growing demand for these qualified professionals to fill jobs, schools have been making an effort to place an emphasis on STEM. However, due to limited funding most schools are not able to provide the resources needed for students to engage in hands on activities related to such. We attempt to remedy both of these problems by providing hands on problems for students to tackle in the classroom that will spark curiosity and inspire students to pursue STEM inside and outside the classroom.

The lesson plan for kits in classrooms consists of four sections: review, learn, build, and recap. In the first section, students review and state any previous knowledge they have of the current subject. Students then learn more about the concept through exercises and examples. This new knowledge is applied during the build section, as students try to build the intended kit either in small groups or as individuals while i-Trek volunteers provide guidance when needed. Finally, the students are brought back together to recap what they learned and to get final clarification if there are any residual uncertainties about the exercise. After each session, students depart with new knowledge and a finished product.

Below is a summary of four sessions conducted at Boston Renaissance Charter School during the month of May 2014. Each session was highly productive and engaging for students. Below is a summary each session

LED Bracelets

The first session conducted was held with roughly 15 K-1st graders. The session started with an overview of electricity and circuits. Each student was given the role of either a positive or negative charge. Positive and negative charges were paired together. Each pair then connected with another pair until a ring was formed. These actions were meant to enforce that the positive end of an element connects to the negative end of another element. Once a ring was formed, students simulated current by spreading a ripple through the ring. The ring was broken and the "current" stopped flowing. This enforced how electricity needs a closed connection in order for current to flow.

After the demonstration, each student was given a fabric band to decorate. Students spent time gluing beads and designs to the bands as well as drawing decorations. Each student was also given a battery to connect to his or her band. Once their band was decorated, students selected a LED and had to determine which direction the LED must face, based on what they learned in the demonstration. Finally the students had to close their band into a bracelet, closing the circuit, in order to see their LED light up.

Students Learned:

- How to connect elements in a circuit
- How to differentiate positive and negative by color
- How current flows through a circuit

Bouncy Balls

The second session was conducted with roughly 24 2nd and 3rd graders. The session focused on chemistry principles. Each student was assigned the role of a proton or an electron. The group then worked collectively to form a water molecule. Each electron had to orbit around their respective proton. After each individual atom was formed, the three atoms combined to form a molecule.

After the demonstration the students measured out the necessary dry ingredients, to make the bouncy balls, into a cup of water. Students then created their desired color using food dye. Finally, each student was given glue to add to his or her mixture. After a lot of stirring and molding each student had a small bouncy ball.

Students Learned:

- The difference between electrons and protons
- Water is also called H_20
- What H (Hydrogen) and O (Oxygen) stand for in H_2O
- What are atoms and how they combine to make molecules
- How to make new colors from primary colors

Motors

The final two sessions were held with roughly 15 3-6th graders on one day. The first session focused on electricity and magnetism. After a brief lesson, each student made a small motor using a battery, nail, magnet and wire. Once successful, students attempted to make their motor faster by adding batteries and magnets. The session ended by testing comprehension.

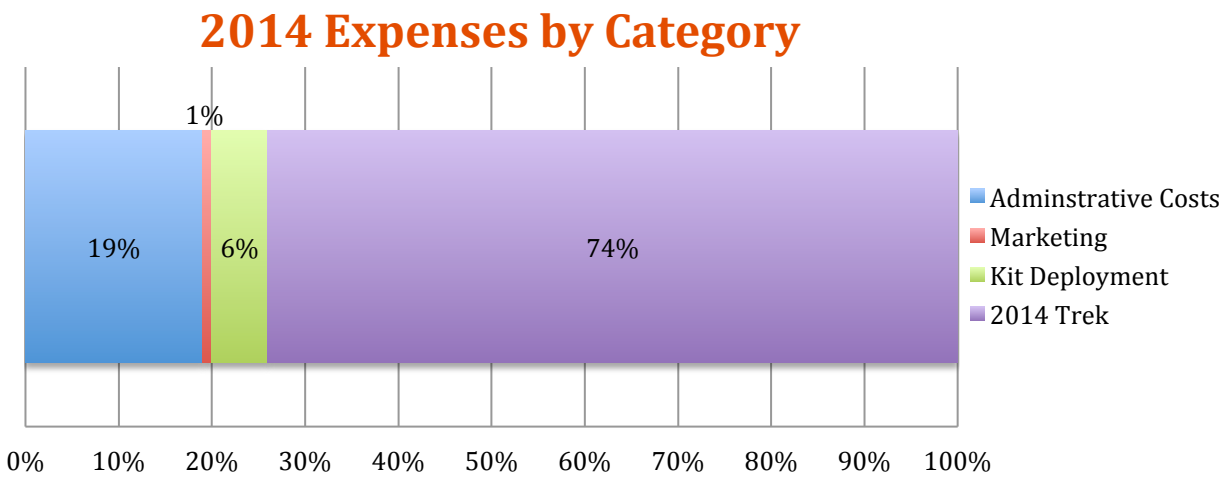
The second session focused on circuits. Students learned about resistors and how to determine the resistance value based on the color bands. The lesson continued with recognizing circuit elements and how to connect them on a circuit board. Students were shown two circuits and were divided into groups to attempt to complete the circuits. The first consisted of lighting up two series LED. The second circuit required the student to replace a LED with a phototransistor.

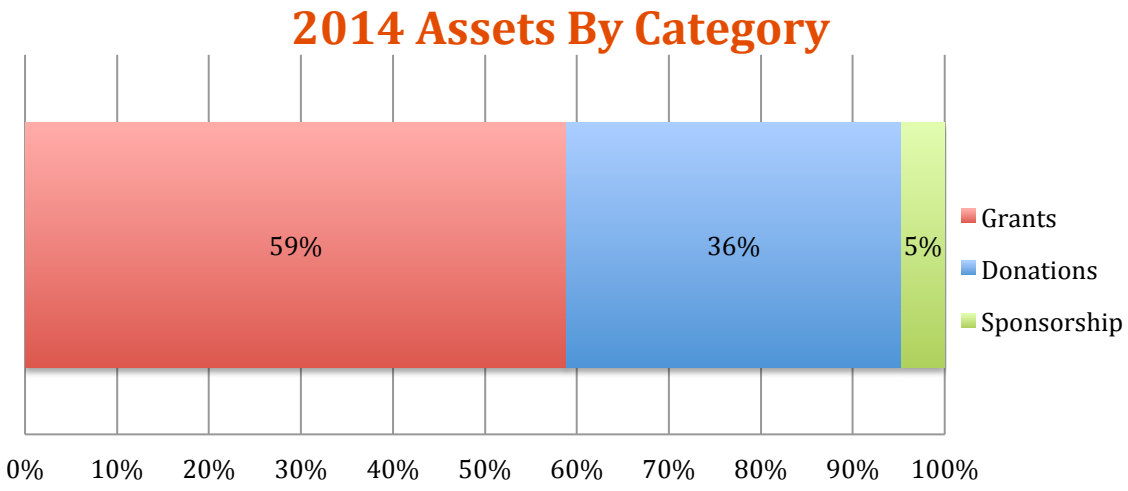
Students Learned:

- What causes electronic and magnetic fields
- How electric and magnetic fields interact to make a motor
- How electric and magnetic fields interact to make a generator
- The purpose of resistors
- The schematic symbols of simple circuit elements
- How to build a simple circuit

Balance Sheet

2014 Balance Sheet Summary	
Assets	$ 10,490.27
Liabilities	$ 15,243.12
Total Net Assets	$ 4,752.85





Strategy Information

In 2014 we saw a better diversification of where our assets came from. However, our expenses surpassed our assets in 2014. This difference was remedied with startup funds received in 2013. In 2015 we hope to continue our diversification of assets and increase our assets by at least 70%. Our greatest expenses were outreach efforts (2014 Trek and kit deployment). This trend will continue in 2015 as we invest the majority of our funds in make an impact for our target audience.

Your Donation is More Important Than Ever

i-Trek depends on donations to support the mission. Although our overhead is low because we are run by volunteers, we need funds to operate. **To make a donation please visit** http://www.i-trek.org/sponsors/donate/

Volunteer and Make a Difference

We would be nothing without our volunteers. Everyone on the i-Trek team donates his or her time so that all of our funding can go directly towards our mission. Volunteers are divided into four committees:

- Management
- Treks

2014 African American Festival

- Fundraising
- Public Relations

i-Trek Volunteers at the 2014 Benefit Dinner

Looking Forward

We have big goals for 2015 including:

- **Finance:** We expect to increase funding by 70% through online donations, grants, and sponsors to prepare for our 2016 Trek and growth in 2015.
- **Treks:** In 2015 we expect to induct our next set of Trekkers and prepare them for a 2016 Trek.
- **Notable Upcoming Events:** In 2015 we plan to implement several fundraising and outreach events to increase funds and visibility.


i-Trek
I Turn Research into Empowerment and Knowledge