

# 2015/16 ANNUAL REPORT

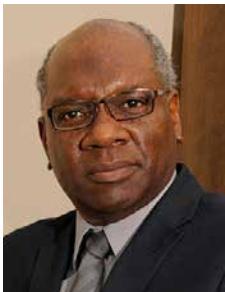
A YEAR OF EXCELLENCE AND DIVERSE GROWTH



DALHOUSIE  
UNIVERSITY

IMHOTEP'S  
LEGACY ACADEMY

## MESSAGE FROM THE CHAIR OF IMHOTEP'S LEGACY ACADEMY



Dalhousie and other universities in Nova Scotia, face a significant challenge in recruiting African Nova Scotian students into the science, technology, engineering and mathematics fields

(STEM). Imhotep's Legacy Academy's outreach into the community is one possible solution to this challenge.

We focus on motivating Junior High students to enter STEM fields through hands-on activities, tutoring and scholarships. This work improves the overall quality of the applicant pool by finding and inspiring the best students to think of STEM as a professional destination.

Over the last thirteen years, Imhotep's Legacy Academy has created a program structure that is successful in delivering results, and has touched more than a thousand students.

Ultimately, Imhotep's Legacy Academy will build a stronger and more diverse community of engineers, scientists and health care professionals.

**J. Pemberton Cyrus, PhD, PEng, FEC**

*Chair, Imhotep's Legacy Academy*

## MESSAGE FROM THE EXECUTIVE DIRECTOR



During the 13 years of Imhotep's Legacy Academy's (ILA) existence, we have remained consistent and determined in enhancing the education of African Nova Scotian (ANS) learners in Science, Technology,

Engineering and Math (STEM). Our program has grown from what started as only an After School project for ANS learners to benefit from fun and interesting STEM activities. It has now developed into multiple science and technology programs, providing students with university scholarships, while strengthening partnerships and attracting donors and supporters. ILA's ethnic scope for delivering STEM education will grow further in the forthcoming years with our recent developments to reach the Aboriginal community.

This year was such an amazing year with a huge success rate in reaching out to ANS learners and multiple success stories from our participants. The staggering rate of underrepresentation of people of African heritage in Science and Technology continues to remind us of our purpose and focus on increasing the number of ANS learners having STEM careers.

Through our strong team of Staff, Mentors, Board of Directors, Partners and Supporters, we are very confident that our work will create a significant STEM impact in educating learners with African heritage. These are the builders and leaders of tomorrow and we cordially ask for your support in educating them with STEM.

**Mr. Sidney Idemudia, BEng**

*Executive Director, Imhotep's Legacy Academy*

# ABOUT US

**Imhotep's Legacy Academy (ILA)** is an effective and successful provincial outreach organization, established in 2003. Based at Dalhousie University, ILA is built on a strong university-community partnership. It aims to redress the underrepresentation of African Canadians in postsecondary Science, Technology, Engineering & Mathematics (STEM) studies.

ILA uniquely mobilizes university students, faculty and community leaders to help improve student success and bridge the achievement gap for Grades 6-12 African Nova Scotian (ANS) learners.

ILA provides its participants with an enriching blend of real-world learning projects, skill-building and leadership development activities, as well as tutoring support.

ILA operates in half of Nova Scotia's regional school boards, trains and supports university students to play powerful roles in the lives of its participants through the building of self-confidence, self-discipline and the mastery of concepts related to scientific, technical, engineering, and mathematics fields.

## HISTORY

In 1999, a science outreach workshop dubbed "Imhotep's Legacy Project I." was organized by ILA's founder Dr. Kevin Hewitt in Vancouver for kindergarten to grade 8 African Canadian students. Dr. Hewitt's experiences led to a discussion with Mr. Wayn Hamilton and the conceptualization of a series of Imhotep's Legacy Projects. Mr. Hamilton identified Ms. Barb Hamilton-Hinch, at the time Dalhousie's Black Student Advisor, who came on board to lend her connections. Years later, with the dedication of many, Imhotep's Legacy Academy operates across Nova Scotia, making STEM subjects accessible and interesting while also supporting academic success.

## EXPECTED OUTCOMES

- Involve members of the Dalhousie community, science teachers, ANS learners and their parents in ILA's programs.
- Increase enrolment of African Nova Scotian learners in STEM programs at Dalhousie University and other post-secondary institutions.

### DID YOU KNOW?

Since 2003, Imhotep's Legacy Academy has successfully provided Science, Technology, Engineering & Mathematics (STEM) enriching programs to over a thousand African Nova Scotian students.



# ILA'S PROGRAMS

ILA's **After School Program (ASP)** introduces junior high school students of African descent to curriculum-related science and math activities intended to develop their interest in, and increase awareness of, these subjects. Mentors visit junior high schools on a weekly basis and alternate between math and science activities. These sessions are an opportunity for students to develop an interest in STEM subjects and get extra assistance with their homework. The science activities are hands-on and interactive, using common household items familiar to students. The math activities are tailored to strengthen their skills in mathematics concepts. The university students who act as Mentors, are essential to the success of the program. Our Mentors work to develop a relationship with their students and they are also role models, as they themselves are pursuing STEM-related fields in their post-secondary studies.

ILA's **Virtual School Program (VSP)** provides tutoring to students of African descent in grades 9–12 throughout Nova Scotia. ILA Mentors interact with participants online or on-site at the ILA Office (currently located in Dalhousie University's Killam Memorial Library). The program is designed such that every participant has access to a Tutor, while also benefiting from the opportunity to work independently. In addition to receiving tutoring, Virtual School participants have the opportunity to participate in workshops and other fun activities that enhance their educational experience and prepare them for post-secondary studies.

ILA's **FIRST LEGO League (FLL)** Program is a robotics program designed to get junior high school students of African descent, between the ages of 9–14 years old, excited about science and technology. It teaches students the values of working together and of solving problems. Each year, ILA's FLL teams have the opportunity to compete in regional and provincial competitions. The challenge for each year has a central theme based on a real-world scientific topic. (For example, the theme for 2015-16 was *Trash Trek*.). Imhotep's Legacy Academy has participated in FLL competitions since 2011, and over the years our teams have received awards for "Presentation", "Mechanical Design", "Technical Design", and "Spirit and Enthusiasm" at the regional and provincial levels.

ILA's **Summer Student Research Scholarships (SSRS)** are offered in partnership with Dalhousie University's Faculty of Science, Faculty of Engineering, Faculty of Health Professions and Faculty of Medicine to create research scholarships for African Canadians pursuing an undergraduate degree in science, engineering, or health professions, at any university in Nova Scotia. The scholarships, valued at \$5,000 or \$6,500 each, are tenable at Dalhousie University and are paid-out over the summer months (May–August) to support university students as they conduct specialized research in their chosen field under the guidance of a Dalhousie faculty member whose primary appointment is in the Faculty of Science,



Engineering, Health Professions or Medicine. Students will gain valuable experience in the design, execution, and evaluation of experiments.

In partnership with TD Bank, the **ILA-TD Bank Opportunity Scholarships** are four-year renewable scholarships for ILA program graduates entering Dalhousie University. Its purpose is to reduce the financial barrier for African Nova Scotian students pursuing studies in STEM-related fields. The promise award is based on participation in ILA's programs. Each year a student remains active in ILA, an additional amount can be added to their total to a maximum of \$5,000 per year of study at Dalhousie. The table below illustrates the award increments per grade:

GRADE	7-10	11	12
Future annual award at Dalhousie per year	\$500	\$1000	\$2000

In addition to our core programs, ILA has a number of programs under development: Science Activity Videos, the STEM Project Challenge, the Science Quest Quiz Tournament and the Math Summer Upgrade Program.

**"I enjoyed the After School program in junior high, as it was a hand on experience doing cool experiments. I am comfortable enough to say that my interest in science and math grew because of my active involvement in ILA."**

– Haja Nabay, former ILA participant and current Dalhousie Nursing student.

**"...they make it fun, they do experiments and stuff."**

**"...they help me understand it because they break it down into something I can comprehend."**

**"He does a lot of hands-on, a lot of it."**

– ILA Participants



# CHALLENGES FACING YOUTH

African Nova Scotians have a long history in Nova Scotia. Over the years, despite sometimes adverse conditions, African Nova Scotians have made meaningful contributions to Nova Scotian society and have always endeavoured to improve conditions for succeeding generations. Some young learners of African descent, however, continue to find it challenging to partake, to perform or to develop into academic achievers in science and math within educational institutions that do not always value their heritage, their abilities, or their input. These and other variables have been recognized as contributory to this outcome. Some other factors include:

- The nature of classroom instruction and interaction.
- Insufficient exposure to science as it relates to the life of the young learner.
- Failure to promote skills fundamental to the development of an appreciation for scientific inquiry.

As with previous generations, science plays a pivotal role in our lives. Understanding the fundamentals of the application of science will enhance the academic performance of African Nova Scotian learners. By focusing on several subject areas in science, and adopting a mentoring scheme, Imhotep's Legacy Academy offers a unique approach to enhancing the quality of math and science education for young learners of African descent.

## **Difficult means possible.**

– Dr. Abdullah Kirumira, scientist, inventor of the rapid HIV diagnostic test, founder of BioMedica Diagnostics, Windsor, NS

**I liked it because it was more hands-on teaching, instead of just kind of looking at things and learning from listening.**

– ILA participant

# 2015/16 PROGRAM OVERVIEW

In the 2015/16 academic year (September to June), Imhotep's Legacy Academy (ILA) executed its core programs in five different cities across Nova Scotia. In doing so, ILA was able to sustain awareness of Science, Technology, Engineering and Mathematics (STEM), while delivering fun, hands-on educational activities to learners of African heritage in the province.

Our **After School Program (ASP)** took place in Oxford Jr. High School in Halifax, Caledonia Jr. High School in Dartmouth, Truro Jr. High School in Truro, Saint Andrew Jr. School in Antigonish, and Whitney Pier Memorial Jr. High School in Sydney. Activities started the week of October 18<sup>th</sup>, 2015 and ended the week of April 3<sup>rd</sup>, 2016. The program was delivered by university Mentors of African descent who received comprehensive training on the proper delivery of science activities and were introduced to the history and heritage of African Nova Scotians (ANS). Our Mentors highlighted the cultural relevance of the concepts presented. Activities were developed so that they complemented the school curriculum. Participants took home samples from their weekly activities at the end of every presentation and attended a scientific field trip during the program year. The program was a success this year, with an increase in student attendance over the preceding year. However, attendance varied by site in the province. On average, attendance was highest at Whitney Pier Memorial Jr. High, followed by Saint Andrew Junior School, Truro Jr. High School, and the same for Oxford Jr. High and Caledonia Jr. High. Figure 1 shows a graphical comparison of the program attendance over several years.

Our **Virtual School Program (VSP)** had another successful year with an increase in student registrations over the preceding year. ILA aims to provide ample tutoring and mentorship to ANS

learners. This enables us to quickly respond to youth in need of our services. This program started very early in September due to the demand for tutoring in Halifax and ended in early June 2016. In October 2015, when the high schools had covered a portion of their curriculum, we promoted this program across the province. All students have the option to receive tutoring virtually via Skype, especially those students who reside outside of HRM. Our tutors are university students of African descent with a comprehensive background in Science or Technology, Engineering, Math and training on ANS history and heritage. ILA's efficacy of expanding and reaching out to more learners was easily attainable. During the 2015/16 year, ILA's VSP

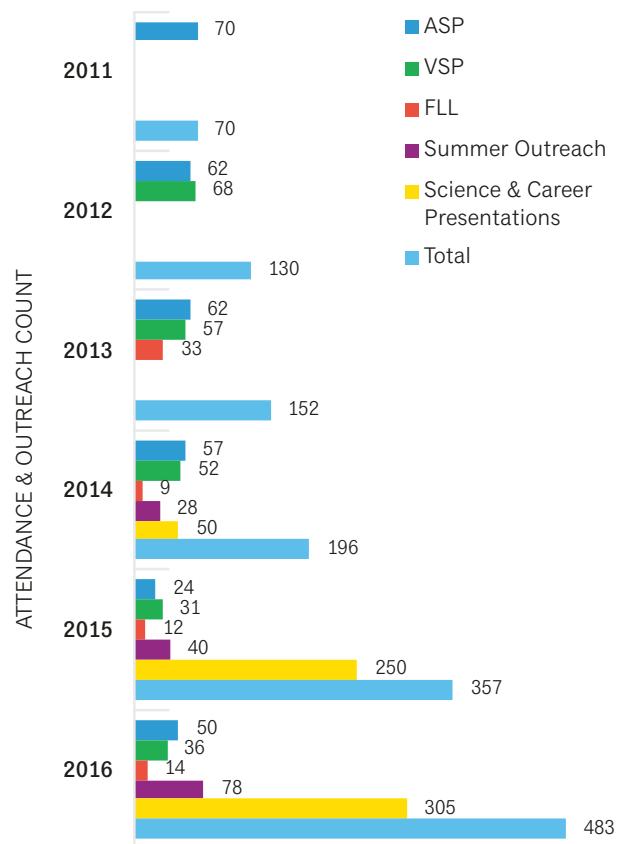


Figure 1: Distribution of ILA program participation from 2011 to 2016.



team delivered outreach workshops to high schools within the Halifax Regional Municipality. Our on-site workshops were held at Cole Harbour High School, Auburn Drive High School, Citadel High School and the New Beginnings Ministries; a local church in the ANS community of Cherry Brook. In July and August 2016, we are running the VSP for a small pilot group of students to improve their Grade 10 mathematics skills. Refer to Figure 1 for a graphical comparison of the program attendance over the past few years.

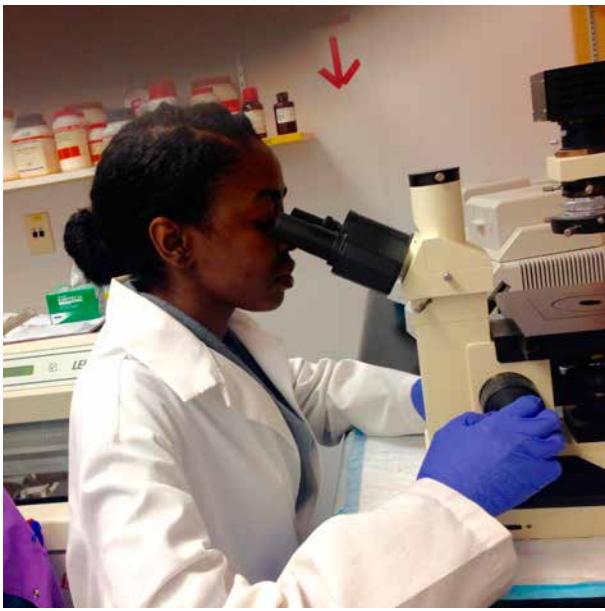
This year, as in other years, our **FIRST LEGO League (FLL) Programs** in Halifax and Truro inspired ANS learners to contemplate and develop solutions to real-world problems by combining basic computer programming with robot design and construction. The FLL program started in September in preparation for the start of the November Regional Qualifiers. Our participants were very excited and enthusiastic to work

with the theme of the competition, entitled "Trash Trek". Their goal was to build a robot with mechanical components to carry out specific environmental tasks such as waste management, recycling, material sorting & transportation, safe environmental cleanup, composting, demolition, decision making etc. By doing so, our participants learned skills such as teamwork, team-building, friendly competitiveness, sharing, researching – and they had fun in the process. Refer to Figure 1 for a graphical comparison of the program attendance over several years.

On September 8<sup>th</sup>, 2015, the **Summer Student Research Scholarship (SSRS)** awardees from the 2014/15 academic year delivered a public presentation of their research topics. Three students – one from each of the faculties of Medicine, Science, and Health Professions, presented their findings after complete sponsorship of their research in the summer of

### **2016 Summer Student Research Scholars**

<b>Student Name</b>	<b>Faculty</b>	<b>Project Title</b>
Mboza Lukindo	Engineering	A real-time voice encoder and transmitter for underwater communication
Demilade Onifade	Health Professions	Modeling the efficacy and possible side-effects of topical neuropathic pain formulations using an in vitro model
Rania Fashir	Medicine	Hypothesizing a role for microRNA targeting in the treatment of heart disease
John Gobran	Science	Non-invasive retinal imaging of the YFP expressing neurons



2016 SSRS (Medicine) student, Rania Fashir,  
conducting an experiment

2015 (the Engineering scholar was out-of-province on a co-op term). Dalhousie University is renowned for its research excellence and ILA is proud to be able to partner with these faculties to sponsor \$6,500 scholarships (\$5,000 for the Faculty of Medicine), which provide beneficial research experience to many deserving African Nova Scotian students. This year, four new students were selected from a pool of applicants to research a topic of their choice under the guidance of a Dalhousie University faculty supervisor. These researchers are paid monthly stipends over the summer and are scheduled to present their results on September 9<sup>th</sup>, 2016.

Also this year, the Faculty of Medicine increased their budget for the *Summer Student Research Program – Non Medical Studentship* by funding seven students to undertake medical research during the summer.



# MY ILA STORY



**Latisha Reynolds** is a Dalhousie University Nursing student and a former participant in our After School Program. She joined this program at our Truro Junior High School site in grade 7 and continued on with our Virtual School Program upon entering high school at Cobiquid Educational Centre in Truro. Her performance, enthusiasm during her time in our program and her desire to pursue a STEM related program at Dalhousie University enabled her to earn an ILA-TD renewable scholarship valued at \$3,500.

In her own words, Latisha said "*Imhotep has actually done a lot for me and my education. I got to attend two different science camps at Dalhousie in the summers when I was in junior high because of the scholarship they awarded me... These were very exciting and interesting... Imhotep was also there to help me online in high school with my science and math courses...*"

Latisha also says that she is very happy with the relationships she created with her Mentors during her time in our program. She kept in contact with her Mentors, especially with one who shares the same medical career goals as Latisha and continues to provide her with great advice as she strives to finish her program at Dalhousie University.



**Xavier MacPhee** is a 7th grader at Caledonia junior high school in Dartmouth. He joined ILA's After School Program last year and has demonstrated high interest in STEM. He was so excited about the After School Program that he brought in two of his friends. He hopes to go to university upon finishing high school and says that he'll be the first in his family to attend university when he accomplishes this goal. He said "*Imhotep is really fun. They help with math/science activities, homework and more. If you're not in Imhotep I really recommend you join! Before I joined Imhotep, I was getting mostly B's in all of my classes but now I'm getting the help I need from my mentors Tendai and Rue and doing better*". Before Xavier joined our program he didn't know what to expect from ILA, however he enjoyed the program as he attended regularly and wants to make our program a part of his life.

## DID YOU KNOW?

In 1896, James R. Johnston was the first Black Nova Scotian to graduate from Dalhousie University. He graduated with a Bachelor of Letters and then entered Dalhousie Law School, graduating in 1898.

# CLOSING CEREMONY AND RECOGNITIONS

On June 25<sup>th</sup>, 2016, ILA held its annual Closing Ceremony during which students (from junior high school to university), Mentors/Tutors, and Funders were publicly celebrated. In collaboration with TD Bank and Dalhousie University, we were proud to offer three new renewable **ILA-TD Opportunity Scholarships** this year. This year's scholarships were promised to two grade 9 students (each has been promised a \$500 award with the possibility of receiving \$4,000 upon graduation from grade 12 should they continue in ILA's programs) and one grade 12 student was awarded a \$2,000 scholarship and is starting a Bachelor of Engineering program at Dalhousie University in the Fall of 2016.

We also incremented seven promise scholarships this year: three of these are for grade 12 students entering Engineering and Science studies at Dalhousie University in the fall of 2016 and four students are still in secondary school. Also, four ILA-TD Opportunity Scholars received renewal of their scholarship payments; these students are currently attending Dalhousie University and are enrolled in Nursing and Science.

Across our five sites, eight students were given awards as **Students of the Year** at their respective sites. Students were selected based on their high performance in the program and interest in STEM.

## 2015–16 ILA-TD Opportunity Scholars

Student Name	School/Grade	Amount Awarded
Akili Cyrus	Citadel HS, gr. 12	\$2,000
Carmahn McCalla	Caledonia JHS, gr. 9	\$500 promise
Oluwatobi Oshikoya	Truro JHS, gr. 9	\$500 promise

## 2015–16 Students of the Year

Student Name	School/Grade	ILA Program
Akili Cyrus	Citadel HS, gr. 12	Virtual School
Xavier Fraser	Caledonia JHS, gr. 7	After School Program
Carmahn McCalla	Caledonia JHS, gr. 9	After School Program
Oluwatobi Oshikoya	Truro JHS, gr. 9	After School Program
Matthew Phee	Saint Andrew JHS, gr. 7	After School Program
Tristan Rollins	Truro JHS, gr. 9	FIRST LEGO League
Evan Rossiter	Oxford JHS, gr. 8	FIRST LEGO League
Donovan Skinner	Oxford JHS, gr. 9	FIRST LEGO League



Board Member Dr. Wilber Menéndez Sánchez Presenting Overall Student of the Year award and certificate of participation to Xavier Fraser

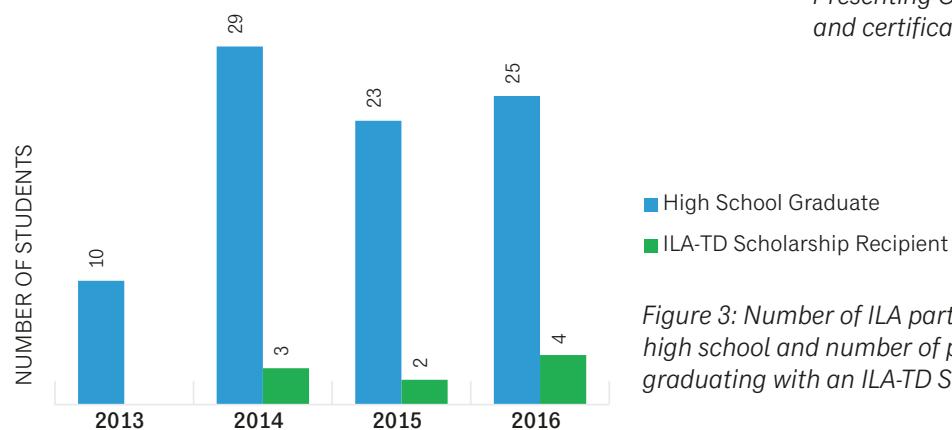


Figure 3: Number of ILA participants graduating high school and number of participants graduating with an ILA-TD Scholarship



# SUMMER PROGRAMS

In summer 2016, ILA also implemented the **Math Summer Upgrade Program**, a summer program primarily for African Nova Scotian students interested in increasing their knowledge and strengthening their performance in high school mathematics, particularly in algebra. We successfully enrolled four students to this pilot program. The academic success of this program will be tested and evaluated from the math grades of the students at the end of the 2016 fall semester. In addition to our Math Summer Upgrade Program, we performed three outreach rocket-building-and-launching activities at North Preston, Beechville and Digby. We visited two **BrainPower Summerslide** camps and one **Quest for Knowledge** camp sponsored by the African Canadian Service Division (ACSD). During our visits, we taught young, energetic teenagers how to build miniature rockets. We visited each site at least twice, the first day was used to build the rockets and the second day was to launch the rockets. We were able to reach 37 ANS teenagers during the period of this outreach initiative. This summer initiative was successful in teaching the participants the basic principles and science of rockets and space. In addition, they learned how to follow instructions, pay attention to details, and work as a team.





# PROGRAM SUSTAINABILITY

This is very important and crucial to success and ILA continually strives to update activities to maintain relevancy. This summer we employed an Activity Developer who added three new STEM activities to our grade 6 collection, revised and update existing activities, and added one new activity each to the grades 7, 8 and 9 collections. All activities were referenced to the new N.S science learning outcomes. In addition, an Activity Presenter was hired to present and videotape some of our existing activities. These initiatives will increase the array of ILA STEM activities and make them more accessible to students within rural areas across Nova Scotia, thus expanding our reach. Some sample videos can be seen at:

<http://bit.ly/2cL9eii>

On February 26<sup>th</sup> 2016, the Dalhousie University President, Dr. Richard Florizone, and his wife, Dr. Mona Holmlund, invited all of ILA's program participants, parents, staff and mentors/tutors to an exclusive *Student Recruitment Reception* at their home. During this event, our participants in secondary school and their parents, had the opportunity to meet university students of African descent to discuss university-life and future careers. In 2018, Dalhousie University will be celebrating its 200<sup>th</sup> anniversary and President Florizone used this opportunity to discuss various opportunities that Dalhousie can offer students of African descent as they consider their future academic career beyond high school.

To further our intention to expand our reach, the ILA Board of Directors passed a motion to extend ILA's reach to the Aboriginal community. Plans to execute this are on-going and we expect to see results in the 2016/17 academic year.

Our major challenge continues to be sustainable funding of our programs. In 2015, we began working with Dalhousie University's Office of Advancement to develop a sustainable funding model and to reach out to potential funders for ongoing financial support. We have also used this as an opportunity to engage new partners in our quest to improve STEM knowledge in our learners.



# GOVERNANCE

ILA is governed by a Board of Directors who effortlessly dedicate their time to the greater good of the organisation's mandate.

## ILA'S BOARD OF DIRECTORS

### **Dr. J. Pemberton Cyrus (President/Chair)**

Associate Dean of Engineering, Dalhousie University  
(on sabbatical)

### **Ms. Adrienne Glasgow-Slawter**

Guidance Counsellor, Prince Andrew High School,  
HRSB

### **Dr. Barb Hamilton-Hinch**

Assistant Professor, Leisure Studies, School of Health  
and Human Performance, Dalhousie University

### **Dr. Wilber Menéndez Sánchez**

NSCC Faculty, Academics & Career Connections

### **Ms. Oluronke Taiwo**

Black Student Advisor, Dalhousie University

### **Mr. Kevin Reade**

Captain with the HRM Fire & Emergency Service,  
Parent Representative

### **Dr. Keith F. Taylor**

Professor, Mathematics & Statistics, Dalhousie  
University

## FUTURE PLANS

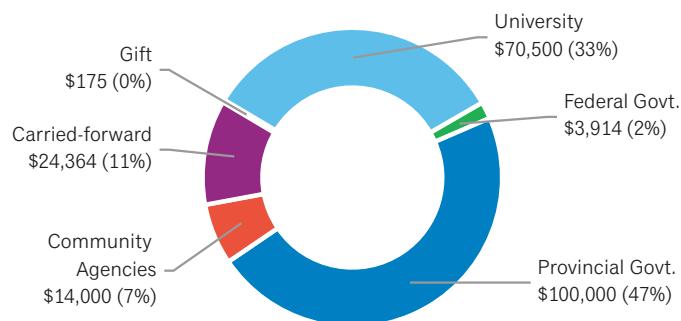
ILA continually strives for new developments and to reach more areas around the province, especially rural areas. In the forthcoming years, we plan on developing new After School Program sites and also utilizing our new video production initiative to reach areas that are beyond our physical reach. In 2017, in addition to our endeavours to reach more African Nova Scotian communities, we will target the Aboriginal communities.



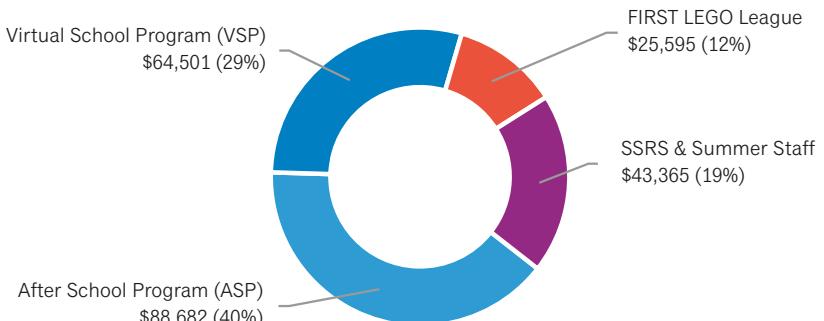
# FINANCIAL SUMMARY

All of ILA financial transactions are processed by Dalhousie University's Financial Services Office through Banner, the university's official financial system, and are posted to a unique special purpose account within the Dalhousie University Chart of Accounts. The financial statements of Dalhousie University are subject to an annual audit by an external accounting firm; reporting to the audit committee of the Board of Governors. In 2016, ILA changed its fiscal year to align with Dalhousie University's April 1<sup>st</sup> to March 31<sup>st</sup> fiscal year to facilitate the reporting of our financial statements. This year, our total revenue was \$212,953 and total expenses were \$222,143 with a (\$9,190) deficit.

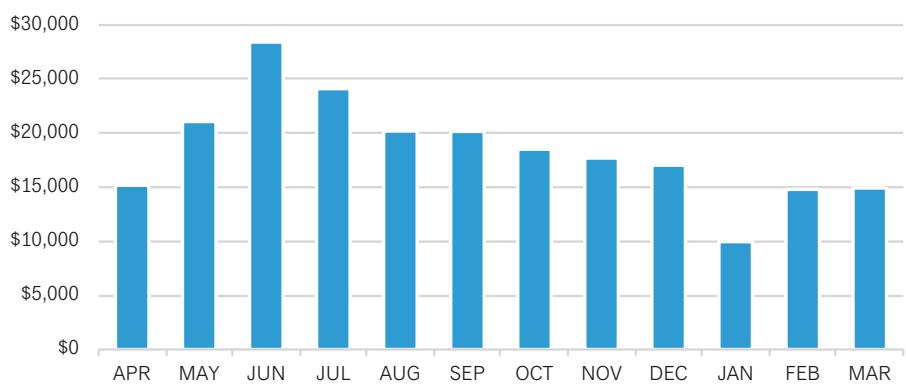
ILA 2015/16 REVENUE SOURCES



ILA 2015/16 EXPENSES BY PROGRAM



ILA 2015/16 EXPENSES BY MONTH



## SPONSORS



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Saint Mary's University, Dean of  
Science Office  
SuperNOVA at Dalhousie  
University

## FOR MORE INFORMATION CONTACT

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