



YOUNG DRAGONS



2019 REPORT



DREXEL UNIVERSITY
ExCITE Center
Expressive and Creative
Interaction Technologies



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NEW YEAR, NEW DRAGONS

JUNE 17TH - JULY 25TH, 2019

Developed in partnership with the **Malcolm Jenkins Foundation**, the Young Dragons program is a unique summer camp offered by the **ExCITE Center** at **Drexel University**, providing innovative science, technology, engineering, arts/athletics, and mathematics (STEAM) activities to middle school students living in the **West Philadelphia Promise Zone**.

Throughout the program, we incorporate the scientific method, the engineering process, and arts & design to facilitate the development of agency and strengthening of creativity and self-expression.

**6 WEEKS
OF STEAM EDUCATION**

**NO COST
TO PARTICIPANTS**

TOTAL PARTICIPANTS

76
2019



44
2018



AFTER ATTENDING YOUNG DRAGONS

76%

STUDENTS WANT A FUTURE CAREER IN A STEAM FIELD

116

TOTAL APPLICANTS FOR 2019

52

AVERAGE STUDENTS PER DAY

SCHEDULE

Monday - Thursday, 9 AM to 12:30 PM

Monday - Friday, 9 AM to 3 PM (July 8th - July 12th)

LOCATION

Dornsife Center (3509 Spring Garden St.)

ExCITe Center (3401 Market St.)

In 2019, the Young Dragons program regularly served 50+ middle school students in the West Philadelphia Promise Zone, expanding to six weeks of integrated STEAM enrichment activities. This program drew students from Alain Locke School, Science Leadership Academy Middle School, Martha Washington School, and Belmont Charter School. New curriculum offerings for 2019 included activities focused on Space Exploration and Visual Arts & Virtual Reality.

STUDENTS

5th - 6th Grades	28
7th - 8th Grades	48
Total Participants	76



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PROGRAM PARTNERS

Founded in 2010, **The Malcolm Jenkins Foundation** (TMJF) is a 501(c)(3) non-profit public charity with a mission to effectuate positive change in the lives of youth, particularly those in underserved communities; by providing resources, innovative opportunities and experiences that will help them succeed in life and become contributing members of their community. For more information visit: themalcolmjenkinsfoundation.org

The Drexel **Expressive and Creative Interaction Technologies (ExCITe) Center** was established in 2013 as a University institute for transdisciplinary innovation. The Center pursues activities at the intersection of technology. The academic community of the ExCITe Center emphasize the arts-integrated approach of STEAM. For more information visit: drexel.edu/excite

Drexel's vision of a comprehensive and progressive urban university striving to be the most civically engaged in the nation comes to life through the **Lindy Center for Civic Engagement**. In collaboration with the community, and in support of Drexel's strategic plan, the Lindy Center for Civic Engagement furthers the public good on the local and national levels while enriching the scholarship and character of Drexel students. For more information visit: drexel.edu/lindycenter

The **Promise Neighborhood** is a US Department of Education-funded program to support "cradle to career" opportunities for children living or attending schools in the West Philadelphia Promise Zone. The program seeks to improve education, health, and economic successes for children, their families, and communities. For more information visit: drexel.edu/civicengagement/centers-initiatives/promise-neighborhood



PEOPLE

DIRECTOR

Dr. Youngmoo Kim
Ph.D. in Media Arts & Sciences, MIT
Professor, Drexel University

ACADEMIC HEAD

Dr. Kareem Edouard
Ph.D. in Education, Stanford University
Assistant Professor, Drexel University

PROGRAM FACILITATOR

Jillian Reilly
M.Ed. in Higher Education and Student Affairs
B.S. Elementary Education
Academic and Student Programs Manager, ExCITE Center

CURRICULUM DESIGNER

Dr. Taquan Stewart
ED.D in Educational Leadership, UCLA
Field Supervisor, Los Angeles Urban Teacher Residency (LAUTR) Teacher Preparation Program

MODULE INSTRUCTORS

Dr. David Rosen
Ph.D in Applied Cognitive & Brain Sciences, Drexel University, M.S. Education, M.S. Psychology

Rasheda Likely
Ph.D. candidate in Educational Leadership and Learning Technologies

Amanda Reinsburrow
Ph.D. candidate in Educational Leadership and Learning Technologies

Monique Woodard
Ph.D. candidate in Educational Leadership and Learning Technologies

Brian McComons
Ph.D. candidate in Educational Leadership and Policy

Alia Amaar
Ph.D. candidate in Educational Leadership and Policy

SUPPORT STAFF

12 in total
2 support staff per activity module

ASSESSMENT LEADERS

Rasheda Likely (listed above)

Elaine Perignat
Ph.D. in Education, Post-Doctoral Research Scholar
Creative Interdisciplinary Research in Graduate Education Program

Magdalene Moy
Ph.D. candidate in Educational Leadership Development and Learning Technologies



NEW 2019 CURRICULUM

VISUAL ARTS AND VIRTUAL REALITY

Led by Monique “Moe” Woodard, the Visual Arts and Virtual Reality week provided a chance for students to interact with a variety of new technologies. These ranged from augmented and virtual reality to 360 film and video. Each day of the program focused on one specific technology, and students had the option to play games and/or design an experience. They used block coding to design their AR and VR environments. As the students created their projects, they went through the process of planning, designing, prototyping, revising, and discovering the methods used behind creating VR, AR, and 360 experiences.



As part of this module, campers had the exciting opportunity to participate in painting an outdoor mural with The Malcolm Jenkins Foundation. Through a partnership with **Mural Arts Philadelphia**, local artists Gabe Tiberino and Nile’ Livingston expressed the shared vision of Mural Arts and TMJF with a series of paintings that will be an everyday reminder for local youth of the world of possibilities that is their future.

STEAM & SPACE

STEAM and Space was led by Drexel School of Education doctoral students Magdalene Moy and Moe Woodard. Student activities ran the full day, Monday through Friday. During the STEAM and Space week, students were given agency to choose which STEAM track (astrophysics, astroengineering, and astrobiology) they wanted to pursue a project in. The students worked collaboratively to design and redesign each of their projects using the STEAM process, grounded in the scientific method, Next Generation Science and Engineering practices, engineering design process, and the creative process. As part of their weekly activities, campers had the chance to attend the **Franklin Institute** viewing the special Marvel exhibit and attending a unique planetarium show.

The final day of STEAM and Space week was a “Launch Day”, which allowed students to present their projects to their peers and families. Additionally, each day the students engaged in a STEAM hour where they worked in interdisciplinary groups to develop an art project supporting the STEM content knowledge of each track.



SNEAKER ENGINEERING

Sneaker Engineering was revised for 2019 by Dr. Kareem Edouard, Assistant Professor in Drexel's School of Education. STEAM fields represent some of the most flexible and lucrative professions in today's economy. While the cultural capital of minorities is being tapped to shape such industries as sneakers, for both fashion and performance, minority students are finding it difficult to break into these fields because of the lack of industry diversity and social access. The Sneaker Engineering module connects the cultural and engineering aspects of sneakers and reframes this particular industry in terms of STEAM opportunities. A career in footwear design combines fashion expertise, design skill, technical knowledge, and business hustle in the design, engineering, and marketing of footwear for corporate or independent shoe retailers. This lab introduced students to challenges and opportunities spanning technical design, manufacturing, and merchandising. As part of the curriculum, students had the opportunity to attend the **Fabric Workshop Museum** exploring exhibits and participating in a silk screen workshop.



MUSIC & TECHNOLOGY

Students explored how STEAM concepts apply to music through hands-on production. Prior to the start of the Music Technology week, students worked on writing songs via music generation apps (e.g., Incredibox) and developed lyrical content that is culturally meaningful. This preliminary work served as a basis for the Music Production sessions, where students learned how to use a digital audio workstation to produce, edit, arrange, and record live instruments as they completed their songs in a real music studio. By recording their musical compositions, students were introduced to the iterative design and creative process. Other activities in the Music Technology module introduced students to the physical properties of sound, energy conversion, circuits, and the relationship between musical rhythm and fractions. The scientific method was emphasized in the Speaker Building activity, in which students predict, test, and determine the factors and materials that lead to increased quality of speaker output. By the end of the Music Technology module, students played their own songs through the speakers they built.



ENJOY
FUN **COOL**
LOVE **LIKE**

More than half of the youth participants use these words to describe their STEAM experience in the post-camp survey!



SPORTS SCIENCE

The Sport Science module was updated and led by Rasheda Likely, a PhD student in Drexel's Educational Leadership and Learning Technologies program. Throughout this module, students actively engaged in a sport as a method to explain scientific concepts. The curriculum activities created learning opportunities for students through sports, particularly basketball, to aid in explaining physics concepts such as velocity, acceleration and deceleration, and momentum. Instructors focused on teaching science content through a familiar sport to continue scientific inquiry and learning through embodiment beyond a formal classroom structure. Students developed the "try this at home" STEAM projects that support the content covered during these lessons.



ATHLETICS & TECHNOLOGY

The Athletics and Technology activities were also revised by Dr. Kareem Edouard. Throughout the Young Dragons program, the primary goal is to develop interest across the STEAM fields. To spark this interest we built a curriculum to bridge sports and engineering. The motivation is to engage students in both the cultural and social connections of a very proud sports community like Philadelphia. Throughout the week, students engaged in the technical application of mathematics and physics to solve sporting challenges. In this module, students participated in the following: designing equipment, analyzing athlete performance, and designing safety interventions (NFL, NBA, table tennis).

ASSESSMENT

FEEDBACK-INFORMED PROGRAMMING

Assessing student engagement and participation is central to understanding the reasons that aid or impede learning and potential long-term career choices, particularly in STEAM fields. In 2019, our primary aim was to examine the effects of a full six-week informal camp setting integrating science, technology, engineering, arts/athletics and mathematics (STEAM) on West Philadelphia middle school students.

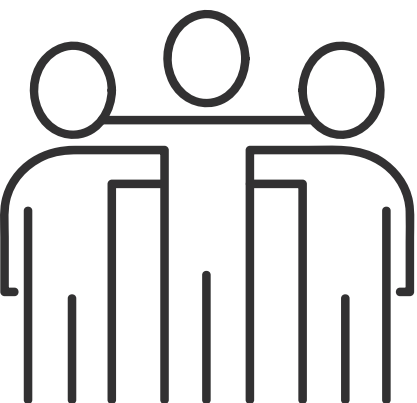
Our assessments were designed using established qualitative research methods, where students completed pre-camp and post-camp surveys (20 questions, each). These surveys were supported by both individual and group video interviews (5 groups total) focused on markers such as self-efficacy, motivation, inspirations, and overall STEM/STEAM career awareness, based on six weeks of participation. The goal is to triangulate as much of the qualitative data to better understand the potential to harness engagement, interest, and STEAM learning for students participating in Young Dragons.

57%

**became more interested
in STEAM
activities outside of school**

56% of students

**said they have never heard
about STEAM before Young Dragons**



90% of students

**can now articulate what STEAM is
and describe their own
STEAM experience**

STUDENT WORK

2. Have you ever had an experience with science, technology, engineering, art, or math that you loved? If so, describe it. (Two sentences.)

I did have an experience that I loved. I love going to a music studio and making my own song.



"This camp is everything we believe learning should be—exciting, creative, and fun—and is not available anywhere else at any price. We're honored to offer this experience to students in the West Philly Promise Neighborhood."

**Dr. Youngmoo Kim, Director
ExCITE Center at Drexel University**



17. I am interested in using my imagination to (complete the sentence).

make a change in the world.



2019
THE MALCOLM JENKINS FOUNDATION
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