

# Seeds of Success 2021-2022:

## Final Report



Ciencia  
Puerto Rico  
cienciapr.org

## Summary

**Seeds of Success** is a Program that mitigates underrepresentation of Latinas in STEM by empowering 7th-9th grade girls in Puerto Rico through: connections with Latina STEM role models, exposure to STEM careers and activities; and guidance to develop leadership skills and become STEM Ambassadors. The program had three main audiences: (1) participating 7th to 9th grade girls, (2) Latina women in STEM mentors and (3) the general public. For the 2021-2022 edition, the program recruited 120 girls across Puerto Rico, and 93 girls were able to complete the program. Also, the program provided a professional development experience to 60 Latina STEM role models and mentors and 9 ex-alumnae who served as peer-mentors. Finally, 11,836 people were reached via webinar series that hosted renowned female STEM professionals, completion of more than 60 STEM outreach projects, and a leadership power training series. Girls exited the program with more positive attitudes towards science, increased interest and motivation to pursue STEM degrees, and higher self-regard as leaders.



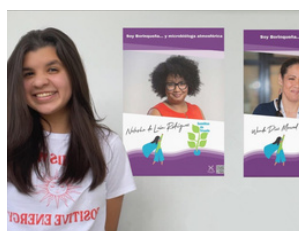
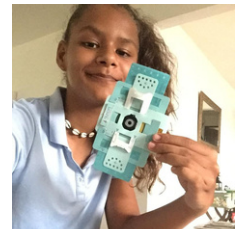
**LATINA ROLE  
MODELS**



**OPPORTUNITIES  
IN STEM**



**LEADERSHIP  
DEVELOPMENT**



## Outputs

During the 2021-2022 cycle, Seeds of Success was able to produce the following outcomes:

- **Events**

- **Summer Mentorship Workshop for peer-mentors-** 10 Seeds of Success alumnae and STEM Ambassadors were trained to become peer-mentors. They received an online mentorship workshop and a panel of women sharing their experiences as mentors.
- **Program Orientation & Leadership Workshop-** Participant girls received an online program orientation along with their parents and also participated in a leadership exercise.
- **Orientation and mentorship workshop for volunteer mentors-**
- **Group online mentoring sessions-** A total of 3 online group mentoring sessions were celebrated during September and December 2021 and February 2022. Sessions included all participant girls along with volunteer women in STEM mentors and peer-mentors.
- **STEM workshop-** The American Chemical Society student chapter (University of Puerto Rico-Río Piedras) offered a 2-hour online workshop with chemical experiments and demonstrations. Girls received all the materials needed to participate.
- **Juntas Podemos webinars-** Six "Juntas Podemos" webinars were celebrated. The videos are maintained on the CienciaPR's YouTube channel and the [Seeds of Success website](#), so that many more can watch them:
  - [Ilette Frontera](#)
  - [Diana Trujillo](#)
  - [Jenny Zhen-Duan](#)
  - [Fabiola Cruz](#)
  - [Natasha de León](#)
  - [Ivelisse Rubio](#)
- **Coding workshop-** Dr. Nayda Santiago from UPR Mayaguez and her team offered an online workshop focused on giving girls introductory knowledge about programming/coding concepts and tools using Scratch app and a very fun hands-on activity about binary numbers
- **Online panel: Conexión Científica Amgen-** A conversation with Amgen women in STEM discussing their experiences and trajectories in the pharmaceutical industry.
- **Workshop: Space Transportation-** An 1 hour online workshop offered by the Ecoexploratorio museum
- **Workshop: Meteorology and Climate Change-** An 1 hour online workshop offered by the Ecoexploratorio museum
- **Final ceremony-** During the closing ceremony at the "Centro Criollo de Ciencias y tecnologías del Caribe" (C3Tec), the program presented its outcomes and girls' achievements. Also, the best STEM Ambassadors' projects (selected by an external committee) received prizes and girls participated in a lab coat ceremony and a museum tour.

## Outputs

- **Videos**

- **Guide videos-** We produced a set of informational videos to guide girls through the program goals and activities. These videos are not public and were shared only with participant girls.
  - Example video: STEM outreach project
- **Program videos-** We produced videos in Spanish highlighting girls and program achievements. Some examples are:
  - Holidays celebration
  - Closing ceremony

- **Classroom/training materials**

- **Latinas in STEM Digital Collection** (Spanish)- The Seeds of Success Latina Women in STEM Collection includes almost 200 Latina role model's profiles in Spanish that includes an introduction video, a short bio and a poster. The Collection includes a user's guide video and posters can be downloaded for free. This cycle, 36 new STEM role models profiles were added to the collection. Also, 5 online free STEM lessons will be under development to be launched in July 2022.
- **"Siembra Semillas de Triunfo en tu escuela"**- 50 educators were recruited to receive (1) a set of printed posters to create exhibits at their classrooms; (2) a teacher guide for the use of the digital collection and printed poster; (3) invitations to "Juntas Podemos"; (4) STEM careers printed poster; (5) possibility to coordinate a virtual or in-person visit of a woman from the collection to their school. Video
- **Leadership Power Training-** Video
- **Technological tools workshop-** Video

- **Program materials**

- **Seeds of Success Welcome Kit-** Participant girls received a welcome Kit with program guides, educational materials and hands-on STEM activities.
- **Program guides-** We developed guides for participant girls and mentors.
- **STEM Ambassador's Projects-** As part of the program, participating Seeds of Success girls designed and completed online & in-person activities/events as their STEM Ambassador outreach activity. These activities have three goals: (1) help girls learn and see first-hand how science can be an empowering tool for their communities; (2) help girls develop communication, teamwork, and time management skills, as well as their self-confidence as leaders and innovators; and (3) extend the impact of the program to more young people. Girls reported their projects and project summaries are included in the website.
- **Seeds of Success Coalition-** A Coalition of 25+ collaborators that includes industry, non-profits, academia and other organizations that support the program and the girls. Two museums were part of the Coalition: "Ecoexploratorio Museo de Ciencias de Puerto Rico" and "Centro Criollo de Ciencias y Tecnología del Caribe".

## Evaluation metrics

The Program monitored different metrics to evaluate success and to ensure it met the Program outcomes. Also, the assessment strategy included: (1) a parent survey, to understand the girls' household context and previous exposure to STEM; (2) workshop evaluation questionnaires, to examine the opinion and satisfaction of the girls and participating mentors with different aspects of the workshops; (3) and a summative assessment, comprised of a survey before the first workshop and one before the closing ceremony, to assess any changes in participants. Seeds of Success edition was a very successful Program that was able to recruit, retain, and engage girls, despite a global pandemic.

- **Metrics**

- **Number of applicants:** 330 7th to 9th grade girls from Puerto Rico
- **Girls' recruitment:** 120 recruited to participate in the program and who participated in the orientation & leadership webinar
- **Girls' retention:** 93 girls completed the program activities
- **Number of STEM Ambassadors:** 68 girls completed a STEM Ambassador Project in their community or school
- **Additional people reached through the girls' STEM outreach projects:** 9,777
- **Women mentor's recruitment:** 60 Latinas in STEM and role models for online mentorship program (2 girls per mentor)
- **Number of Peer-mentors:** 9 alumnae and STEM Ambassadors from Seeds of Success were trained to become peer-mentors
- **Additional recruitment of Latina Role models:** 23 Latina women in STEM who participated online as speakers at "Juntas Podemos" and workshops' facilitators.
- **Attendance to "Juntas Podemos":** over 1,500 attendants to 6 webinars
- **Number of students impacted Leadership Power Training online course:** 500
- **Number of collaborators in the Seeds of Success Coalition:** 29
- **Number of new profiles in the Collection:** 36
- **Teachers participating in "Siembra Semillas de Triunfo en tu escuela":** 50
- **Visits to Seeds of Success Women in STEM Digital Collection:** more than 17,000 visits
- **Media tour impact:** The Celebration media tour and press campaign highlighting girls' projects and program achievements, resulted in the equivalent of \$46,250 in digital, radio and TV time. See some publications in the news section of the website.

- **Surveys:**

- Participant girls: **97%** overall program satisfaction
- Participant girls: All survey items about program activities satisfaction received a **median value of 4** or higher in a scale of 1-5, with 5 being the most positive score.
- Overall scores for the entire survey were **significantly higher** after the program than before (Pre average=169, Post average=178, p-value of 0.0002).
- Results showed **significant improvements** in girls' attitudes towards scientists and engineers (p-values <0.00001 for both).
- Program objectives items such as: trust in own-leadership, self confidence, knowledge of STEM careers and opportunities, and access to STEM role models had a **significant difference** between post and pre survey (p-values 0.0311, <0.0001, 0.0044, <0.0001, <0.0001 respectively) showing improvements after program participation.
- **92%** program satisfaction among women mentors
- **82%** of mentors agreed that the mentoring experience allowed them to contribute to the development of girls in STEM disciplines.

Seeds of Success will continue its impact in Puerto Rico. We are currently running a new cycle of 120 girls for the 2022-2023 school year. The Program aims to do a hybrid schedule with online activities and in-person activities. This year, the Program will also include the participation of 20 Program alumni (past participants) who will serve as peer-mentors to the recruited girls. Finally, the Program will continue implementing a long-term evaluation strategy to track outcomes such as high school graduation, college enrollment, choice of major, and future career choices. In the future, Seeds of Success has specific plans for expansion beyond Puerto Rico including establishing sites in Latinx communities across the US in which our unique role-models and programmed activities are expected to have similar positive effects.

### *Seeds of Success Coalition*



***Si apoyamos una chica en STEM,  
ENTONCES ella puede cambiar el mundo***

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