

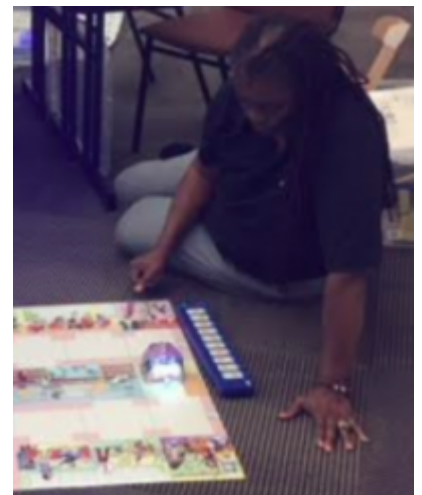
Makerspaces - Computer Science in Action

Supported by a grant from the city, the Houston Parks and Recreation Department took major steps to expand computer science and computational thinking instruction for children in low-income families in Houston, Texas by purchasing resources for their Makerspaces in a number of locations. Terrapin's [Makerspace Bundle](#), which includes Bee-Bot, Blue-Bot, Pro-Bot, and Ino-Bot, along with the Easi-Scope Digital Microscope and the materials needed to utilize them are part of the Parks and Recreation program.



These Makerspaces are located in over 30 sites on school campuses, child care agencies, and community centers throughout the Houston area. The grant also provided Makerspace administrators and teachers with professional development on use of the products.

[Karen North](#) and [Hiedi Williams](#), both experienced teachers, conducted the training. They began with simple directional programming on Bee-Bot, noting this type of physical computing, along with the instant feedback Bee-Bot provides, is crucial for 4-6 year old students. Even the adult instructors had fun creating multi-step directional (forward, back, left, right) programs with Bee-Bot's buttons and then pushing 'GO' button to see what happened.



From there the class moved to Blue-Bot and the representational command blocks and remote control using the Tactile Reader. This is a great way for beginning programmers to understand that the block commands show the sequence of steps Blue-Bot will follow when the program is started. Trainers Karen North and Heidi Williams helped participants see the literacy and math connections through shape identification, letter identification, and even a Bee-Bot Dance challenge. Task cards for these activities may be found [here](#).



Finally, Nikia Lewis, the Houston Parks Superintendent of Recreation Programs, led the way in programming Pro-Bot, a robot that can draw as it moves. Pro-Bot has the Logo programming language on board with instructions entered one line at a time. By entering commands such as FD 50 (forward 50) and RT 60 (turn right 60 degrees), participants were able to produce complex shapes that displayed angles, distance, computation and other state math standards.

The goal for this training experience was to increase the participants' confidence levels in integrating computer science into their Makerspaces. The data shows this was achieved.



Pre-training confidence level:



Post-training confidence level:

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Tags:

Makerspace, Bee-Bot, Blue-Bot, Pro-Bot, Teacher Training, Texas, After School