

Art+Energy Camp Pittsburgh 2015 was a dynamic partnership between the Land Art Generator Initiative, Conservation Consultants, Inc., and Homewood Renaissance Association. And, of course, each camper involved!

The Camp was made possible with the generous support of Three Rivers Community Foundation, Heinz Endowments, Google Community Grants, and the RK Mellon Foundation.

# **ART + ENERGY = CAMP**

HOMEWOOD, PENNSYLVANIA 2015

## ***Introduction***

This unique six-week summer camp in the Homewood neighborhood of Pittsburgh gave 20 kids an education in energy science, climate science, art, design, and solar power installation.

These experiences were then applied to benefit the local community. The campers designed a public artwork utilizing solar panels (4 kWp) to generate renewable energy. Fifteen modules have been installed in an arrangement that was conceived by the students with the principles of the Land Art Generator Initiative in mind.

The solar artwork now provides clean electricity to help offset the demand load of the Homewood Renaissance Association facilities

and provides a unique cultural amenity for the community, with a personal phone charging station that can be utilized by anyone in the neighborhood.

The kids were a driving part of the entire process. They have helped with documentation, social media, design, and meetings with consultants. When challenges presented themselves, the campers were there helping us to brainstorm solutions. The outcome for them goes beyond this particular solar artwork. In a sense, we have graduated project managers. It's our hope that they'll be able to apply this experience in all walks of life.

WEEK

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## *Exploring the Existing Energy Landscape*

(Understanding the Challenge)



Above: Camp participants get a tour of the Beaver Valley Nuclear Power Plant.

Left: Participants on the roof of the Bruce Mansfield Coal Fired Power Plant in Shippingport, Pennsylvania.

Week one of Art+Energy Camp was about understanding the entire landscape of energy generation in Western Pennsylvania—a window onto the existing conditions of our energy portfolio—while also understanding the global environmental and social issues around energy generation. Because Western Pennsylvania has a very high mix of coal-fired power, which contributes to consistently poor air quality in the Pittsburgh region, we felt it was important for the youth to witness a plant first hand. We visited a coal plant that contributes 17 million tons of CO<sub>2</sub> annually. On the tour we walked along a 110-degree Fahrenheit catwalk—an embodiment of the lesson that they had learned the previous day about energy conversion efficiency and waste heat. We also visited a nearby nuclear power plant. The students raised lots of questions about the safety of nuclear vs. coal, which lead to some important conversations. We then contrasted these experiences by visiting solar installations and buildings with integrated passive and active energy efficiency systems.



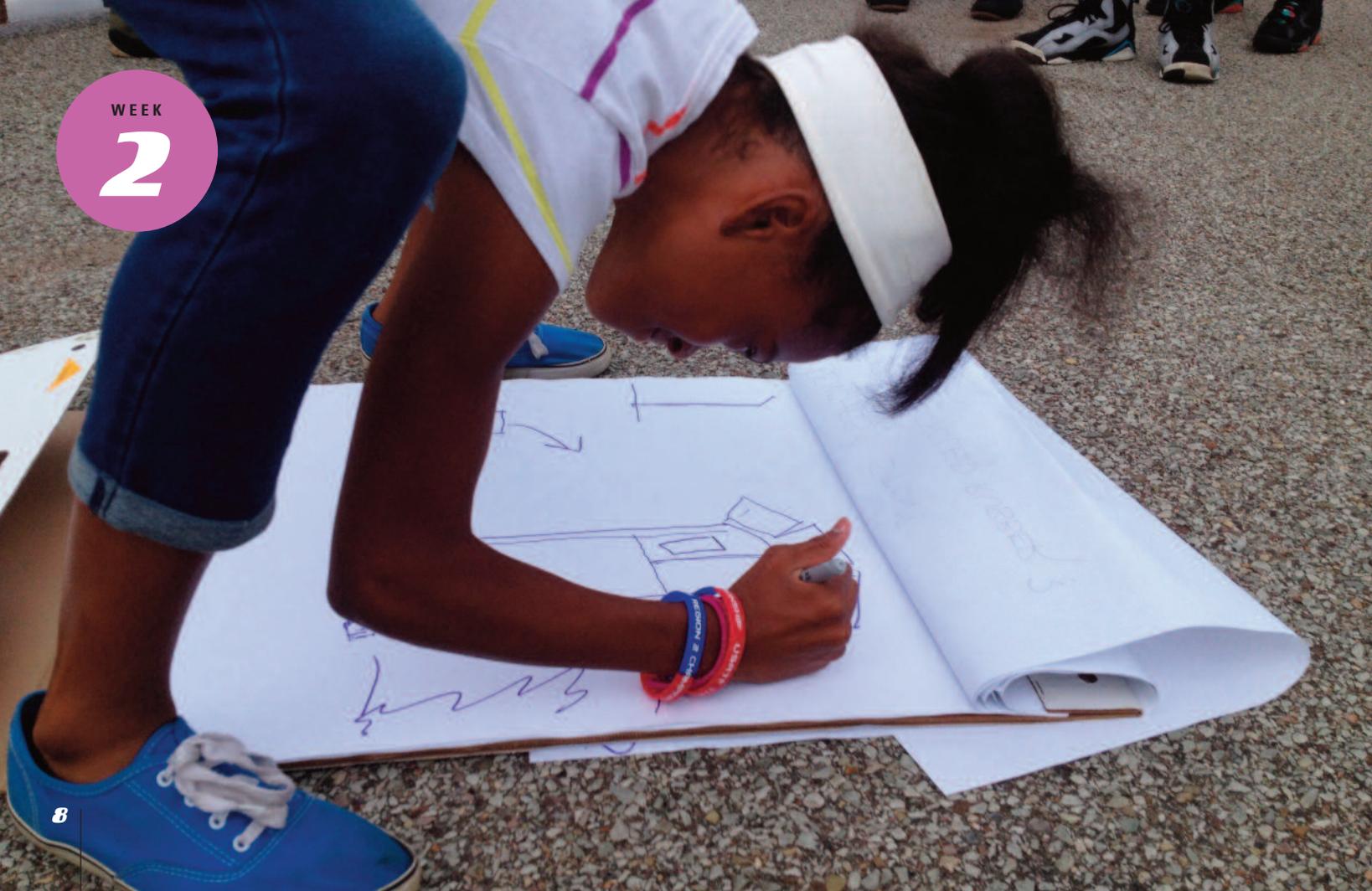
**Field trips during the camp included**

Beaver Valley Nuclear Plant, Bruce Mansfield Coal Fired Power Plant, Conservation Consultants, Inc. building, Energy Innovation Center, Chatham University's Eden Hall Campus, a residential solar installation, Homewood Library, Construction Junction, and the Center for Creative Reuse.

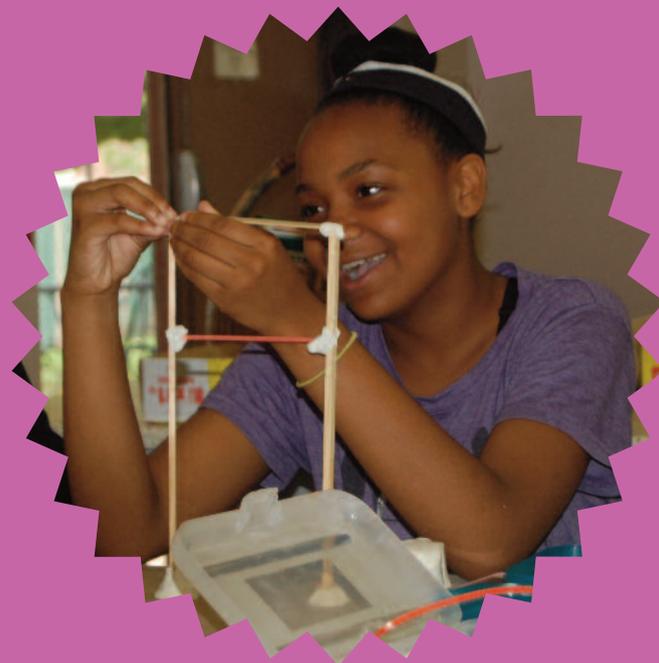
**Guest lessons and demonstrations by**

Fred Underwood  
Tim Gerhart  
David Edwards  
Ginette Walker Vinski





## Sketching Solutions

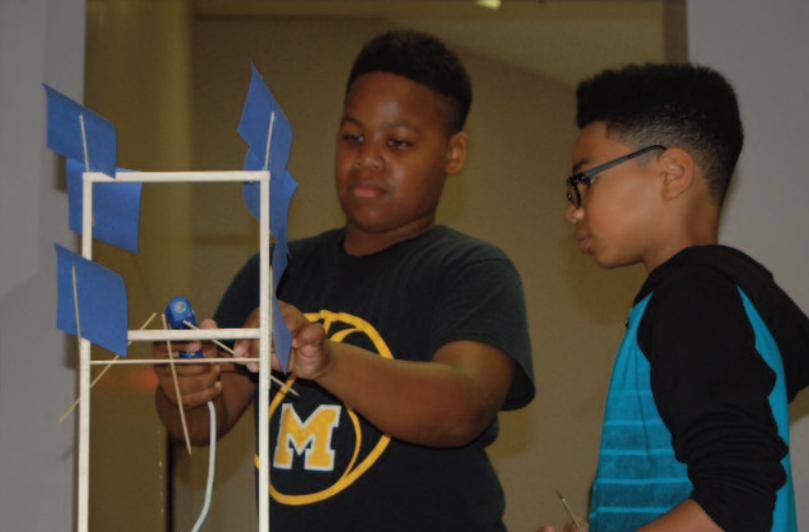


The process of concept generation was really interesting. We had conversations about the Homewood neighborhood and about words that capture what the campers want visitors to the artwork to feel. Together the kids eventually arrived at the idea of a “Renaissance Gate” —a passageway through which visitors can walk from the old Homewood into a Homewood of the future—a place of prosperity and opportunity for those who call it home.

Working from that concept, design sessions brought the kids together to collaborate on various 3D forms and configurations using the 17 panels. The kids incorporated the symmetry of a violet flower and offered pragmatic considerations for shade and protection from rain.

***“People think Homewood is a bad place to be, but the kids and the builders are making a solar panel artwork so that people will not judge Homewood because of some other stuff that happens. We are opening a door of opportunity for Homewood, and as a community we are trying to make Homewood a better place.”***

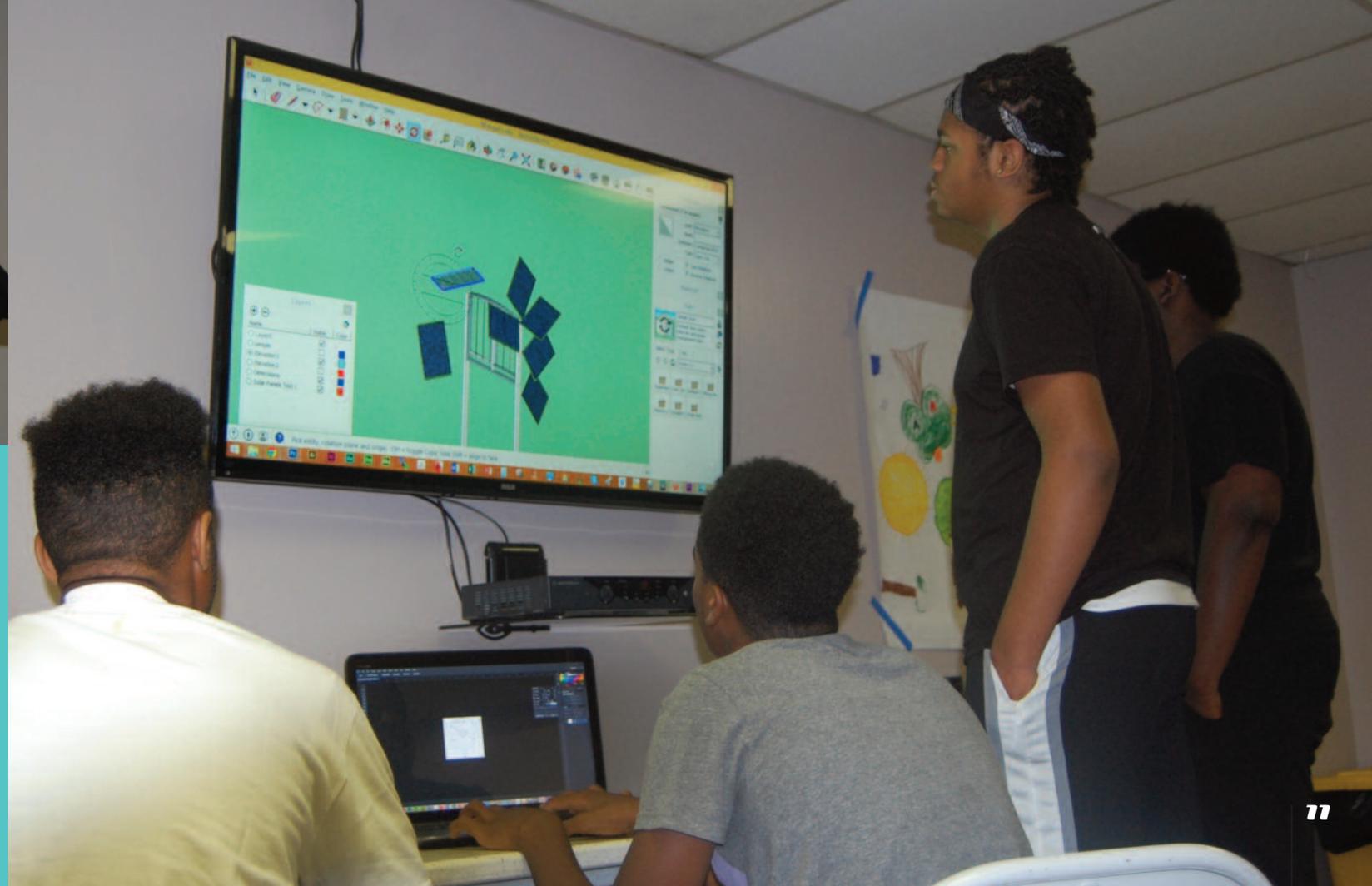
—TERRELL WILLIAMS (age 11)



Left: This sketch was made by Rodney Heard, Educator at Homewood Renaissance Association, while at the site and inspired the campers as they developed their ideas.

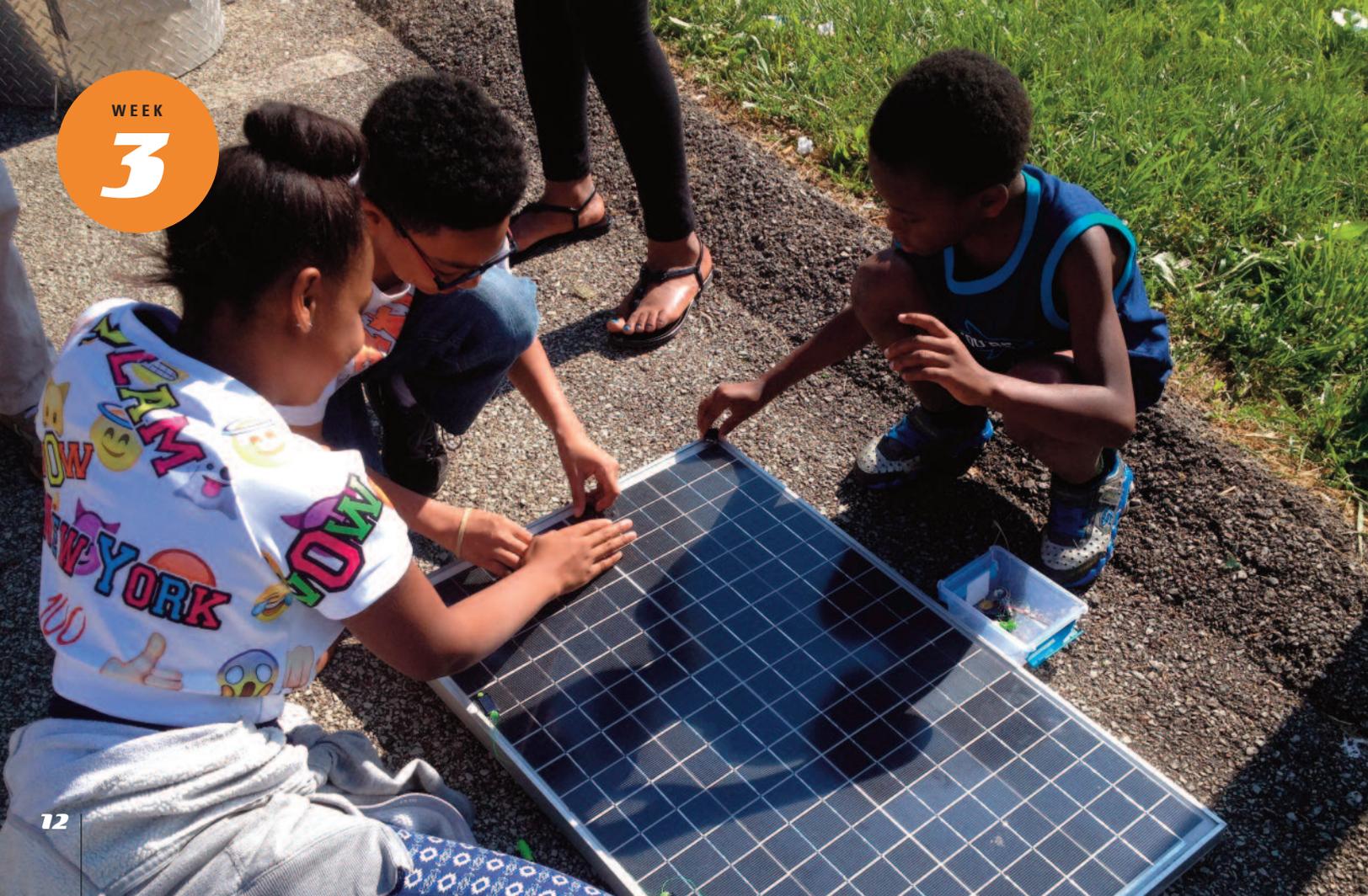
Above: Caleb Williams and Terrell Williams place 1" = 1'-0" scale solar panels onto a frame of the existing marquee on site that was up-cycled as the structure for the artwork.

Right: Camp participants use Google Sketchup to model their ideas about the form of the artwork and how it can become a "gateway" for the neighborhood.

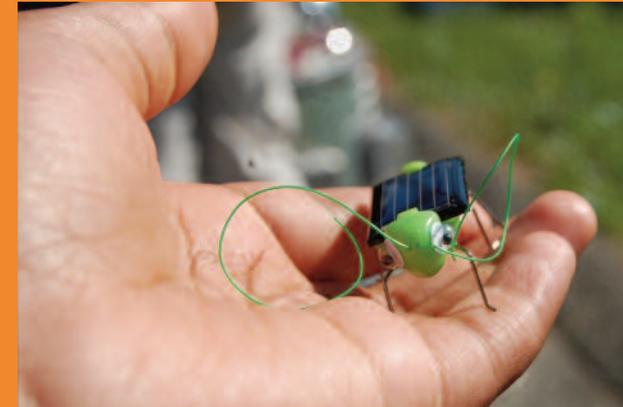


WEEK

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## Detailed Design



Site visit by David Edwards, local artist and innovator, provided camp participants with inspiration and food for thought about how to get creative with solar energy.

*“I feel the Renaissance Gate should inspire the community that in Homewood you don’t always have to use violence—and it’s a very nice community and it should be represented as one. The Renaissance Gate should stand for peace, non-violence, truth, justice. It should bring us and make us realize that we are all the same and one big family.”*

—MYA LANE (age 15)

*“Renaissance Gate means to me that once you walk through it you will come into a completely new Homewood. A new community without fear, without poverty, and without violence.”*

—JORDAN BLACKWELL (age 14)



Left: Camp participants meet with Tim Gerhart, structural engineer, at the site of the future artwork. Tim talked about how the wind load on the solar panels would affect the existing foundation and the way that engineers collaborate with artists, architects, and designers.



Other images this page: Participants helped David Edwards put together his solar flower artwork and learned how charge controllers regulate the energy that flows from the solar panels to the battery in an off-grid system. Right: Creating mandalas was a great design exercise.



WEEK

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After sessions of idea and word generation, the camp participants wrote their positive wishes for the neighborhood as a decorative element on the lower part of the installation.



## Site Preparation and More Field Trips



Above: Jordan Blackwell  
and Rodney Heard

*“The Renaissance Gate is an entry point to a positive space in the community.”*

— CANAAN BLACKWELL (age 14)

*“It’s helping the community. It’s a place where you can empty your mind.”*

— CALEB WILLIAMS (age 11)

*“Renaissance Gate is when you are walking through a whole different neighborhood that you’ve never been to. And it’s a more wonderful space.”*

— DAVONTAE GARNER (age 14)



Left: DaVontae Garner, Jordan Woods (foreground), and Thomas Bowens, Jordan Blackwell (background) at Construction Junction, where the camp participants learned about the importance of reuse. Bottom Left: Inspirational words for the community.

Below: Participants got a lesson in the engineering process at the Homewood Library. The librarian had us build houses out of paper with the goal of creating a structure strong enough to support the weight of a stuffed tiger. We had some success while also learning from our mistakes.



Underwood Solar bolts the structural frame onto the existing marquee. This is the support to which the aluminum rails that hold the solar panels will be attached.

## Installation

With the design resolved and the structural details signed off by the engineer, it was finally time to make things real. At the end of Week 4, Robert Ferry had presented the detailed design drawings to the Camp participants to show how design schematics get translated into a language that metal fabricators and contractors can understand clearly without questions or room for interpretations.

Fred Underwood, the solar panel installer and owner of Underwood Solar Future, had generously signed on to assist us with what was sure to be a far more complex project than your typical solar panel installation. The construction would require super fast fabrication.

On Tuesday, Fred and Robert took the drawings around to a half dozen steel fabricators around the "Steel City." They finally found VB Fabricators who agreed to deliver a complete structural frame to the site on Friday of the same week. It was time to schedule the crane and the lift!

Installation continued into the weekend and early into Week 5, finishing up just in time for the grand opening with the Mayor.



Above: Rodney Heard, Jordan Woods, and Jordan Blackwell take down an overgrown weed that was both unsightly and threatened to shade some of the solar panels.



**Left, Right, and Below Right:**  
In order to give the engineer accurate information about the existing foundation, we all had to dig down to find the bottom of the concrete footing. Good news! It extends to more than three feet below grade. Imani Nanji told Mayor Peduto that her favorite part of the whole Summer Camp was digging.

**Below Left:** Terrell Williams spins the whole world on his finger. So do we all when we make decisions about energy use in our daily lives.



WEEK

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Left: There were definitely some late nights on the way to meeting our opening date. Thanks Underwood Solar Future!



## Wrapping Up and Celebration



Above: Placing the colorful panels on the street-facing side of the solar artwork.

All of the hard work really paid off. It came down to the wire, but the artwork was installed just in time to greet Mayor Bill Peduto who cut the red ribbon to open Renaissance Gate. He was pretty impressed with what the Campers had accomplished. And he was also impressed with the concept behind the artwork. In his words:

“So guys, you named it right! The Renaissance started in a city in Italy. It followed the dark ages when there were wars and violence and there wasn’t a lot that people could point to and say, “we accomplished this.” And then the Renaissance came about. It was the combination of art and science—putting them both together in a city and seeing amazing things happen—and it took over the world.

That’s what we’re doing here. There is so much good that is happening in Homewood. So many people who decided to stick it out, to stay here, to fight because this is their home. They wanted to see that day happen, and that day is happening.

This is the future. This is how we’re going to power cities for the next 100 years. We’re going to produce the energy right in the communities where it is needed. And we’re going to be able to do it in places like Homewood. To show the rest of the city, the rest of the country, and the rest of the world what a true Renaissance is!”



Left: Robert Ferry, Jordan Blackwell, and DaVontae Garner work together to fasten the aluminum rails to the solar panels. Right: Mya Lane and Mayor Peduto pose for photos at the opening ceremony.



Bottom left: Ewane and Imani Nanji make sure the aluminum rails are properly aligned before bolting them to the solar panels. Right: Canaan Blackwell brings out the next panel ready for installation.



**Art + Energy = Camp(ers)**

Jordan Blackwell, Canaan Blackwell,  
Adrian Nanji, Ewane Nanji, Thomas  
Bowens, Mya Lane, Sarai Robinson,  
Emani Jones, Elizabeth Blackwell,  
Jordan Woods, DaVontae Garner,  
Terrell Williams, Lamonte Farrish,  
Cameron Jennings, Madison Wilson,  
Erin Shealy, Caleb Williams,  
Imani Nanji, Jasmyn Berry,  
Elisha Blackwell

**with**

Rodney Heard,  
Educator with Homewood  
Renaissance Association

Indigo Raffel,  
Education Coordinator with CCI

Robert Ferry and Elizabeth Monoian,  
Founding Directors, LAGI

**For more information**

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