Green Scene

St. Philip’s Academy teaches students about sustainability and nutrition

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By Stuart Thornton

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On a rooftop in the bustling downtown of Newark, New Jersey, a garden tended by students of St. Philip’s Academy yields a bounty of lettuces, tomatoes, broccoli, watermelons, cantaloupes, corn, beans, lavender, and many other fruits, vegetables, flowers, and herbs.

The garden is one part of the school’s innovative EcoSPACES program, which provides students the tools to lead a healthy and environmentally productive life.

Frank Mentesana, director of EcoSPACES, says the co-curricular program adds another dimension to the kindergarten-through-8th-grade school’s educational offerings.

“Our mission is really to have our kids leave understanding large concepts of sustainability as well as how our food cycle works,” he says. “We do that through a number of learning environments that we have created for students and teachers. These learning environments include our rooftop garden, which is about 4,600 square feet. We have a teaching kitchen. We have an urban farming lab. These are all places where teachers can actually get out of the traditional classroom setting and go and teach their curriculum in a much more hands-on way.”

The rooftop garden does more than just teach students about the environment
and food production. St. Philip’s Academy uses the garden to help teach everything from history to science to math.

“One of the grades does a lesson in the kitchen,” Mentesana says. “They are . . . learning how to add fractions. The tie-in to the pizza part of the garden is that they take the crops that they harvest from the pizza garden and then they go into the kitchen and actually make pizzas. Rather than sitting there with a piece of paper at their desk trying to understand this concept of a quarter and a quarter equals a half, they’ll make pizzas and they’ll put peppers on one quarter and maybe cilantro on another quarter. It’s very clear visually that that quarter and that quarter on that pizza equals a half of that pizza, so suddenly these worksheets that they are working on have been customized to support what they are doing in the kitchen.”

Another aspect of St. Philip’s EcoSPACES program is the school’s kitchen classroom, which features two sets of wall ovens. Students learn how to prepare foods using ingredients from the rooftop garden.

“One of the things we try to do is look at food that has been processed and compare it to what it would take to make it from scratch,” Mentesana says.

**Indoor Agricultural Machine**

Just feet from the kitchen classroom is St. Philip’s “indoor agricultural machine,” a growing system designed specifically for urban environments by AeroFarms and brought to the school by EcoVeggies, a company hoping to spur urban agriculture in Newark.

The car-sized machine features sets of growing trays covered in unique fabric. Students use the sort of Parmesan cheese shakers found in pizzerias to shake seeds of leafy greens—including spinach, arugula, kale, and Swiss chard—onto the trays. A foam-core board then covers the fabric for 24 to 36 hours. After that, the seeds sprout and the covers are removed while the growing greens are nurtured with misted water and carbon dioxide (CO₂), which is blown over the plants.

“It’s this perfect combination of the right CO₂ levels and the right amount of water and nutrients,” Mentesana says.
The indoor agricultural machine allows for the planting of leafy greens in a relatively small space and causes the vegetables to grow in a shorter period of time.

“We harvest within 18 days, and it would probably take 28 days to 36 days to actually do what we are doing in the ground,” Mentesana says.

Miguel Brito, Head of School at St. Philip’s Academy, says the school creates a fertile place for students, as well as flowers, to bloom.

“They go on to great heights,” he says. “They go on mostly to day and boarding schools all across the Northeast. Over 95 percent graduate from high school and go on to four-year college, where they also graduate. Compared to a city where only about 30 percent of the kids who start high school are going to graduate from high school, we’ve got a pretty sterling record.”

“Between the garden, the teaching kitchen and the dining room,” Mentesana says, “what we are hoping they leave here with is a real understanding of where their cooked food comes from and that it dispels all the myths and vagaries behind where food actually comes from.”

Vocabulary

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<tr>
<th>Term</th>
<th>Part of Speech</th>
<th>Definition</th>
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<tr>
<td>bounty</td>
<td>noun</td>
<td>large amount.</td>
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<tr>
<td>bustling</td>
<td>adjective</td>
<td>busy.</td>
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<tr>
<td>carbon dioxide</td>
<td>noun</td>
<td>greenhouse gas produced by animals during respiration and used by plants during photosynthesis. Carbon dioxide is also the byproduct of burning fossil fuels.</td>
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<td>co-curricular</td>
<td>adjective</td>
<td>activity or set of activities that complement the main course of study (curriculum) of a classroom or school.</td>
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<tr>
<td>concept</td>
<td>noun</td>
<td>idea.</td>
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<tr>
<td>crop</td>
<td>noun</td>
<td>agricultural produce.</td>
</tr>
<tr>
<td>curriculum</td>
<td>noun</td>
<td>classes or courses of study offered by a school or a specific school program.</td>
</tr>
<tr>
<td>customize</td>
<td>verb</td>
<td>to change or modify an object to a unique set of preferences.</td>
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dispel  
verb  
to get rid of or cause to disappear.

downtown  
noun,  
adj  
central or busiest commercial area of a city or town.

environment  
noun  
conditions that surround and influence an organism or community.

fertile  
adj  
able to produce crops or sustain agriculture.

food  
noun  
material, usually of plant or animal origin, that living organisms use to obtain nutrients.

food cycle  
noun  
all related food chains in an ecosystem. Also called a food web.

fraction  
noun  
number expressed as a ration, such as a/b.

harvest  
noun  
the gathering and collection of crops, including both plants and animals.

ingredient  
noun  
component or part of a whole.

innovative  
adj  
new, advanced, or original.

leafy green  
noun  
vegetable consisting of plant leaves, stems, and shoots. Also called a salad green or leaf vegetable.

mist  
noun  
clouds at ground-level, but with greater visibility than fog.

nurture  
verb  
to support, care for, and protect.

nutrient  
noun  
substance an organism needs for energy, growth, and life.

spur  
verb  
to encourage or move forward.

sterling  
adj  
excellent quality.

sustainability  
noun  
use of resources in such a manner that they will never be exhausted.

tend  
verb  
to care for or look after.

urban  
adj  
having to do with city life.

urban agriculture  
noun  
process of growing, harvesting, processing, and distributing food in a city or town.

vagary  
noun  
unpredictable event.

yield  
verb  
to produce or result in.

Video

- CNN: St. Philip’s Academy’s Green Vision

Websites

- St. Philip’s Academy