

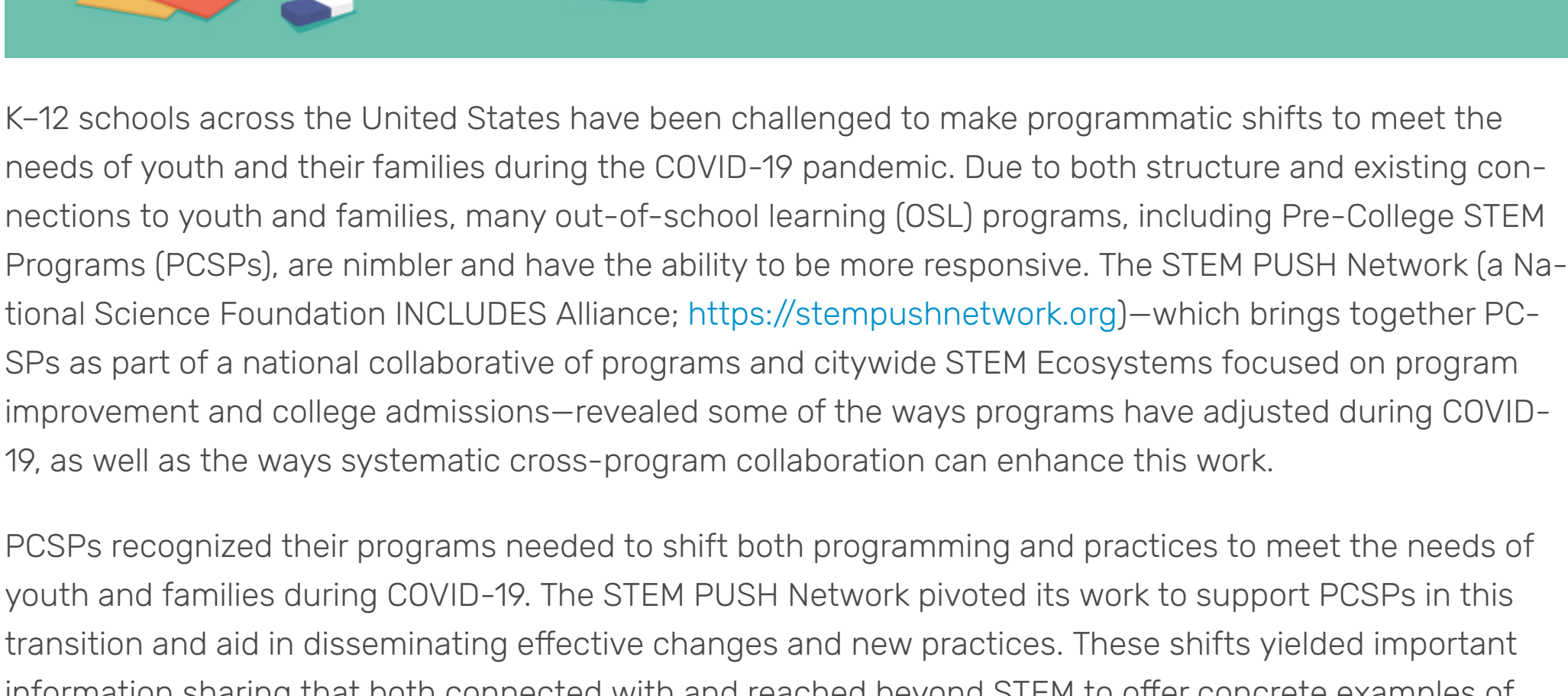
BRIEF

Leveraging Out-of-School STEM Programs During COVID-19

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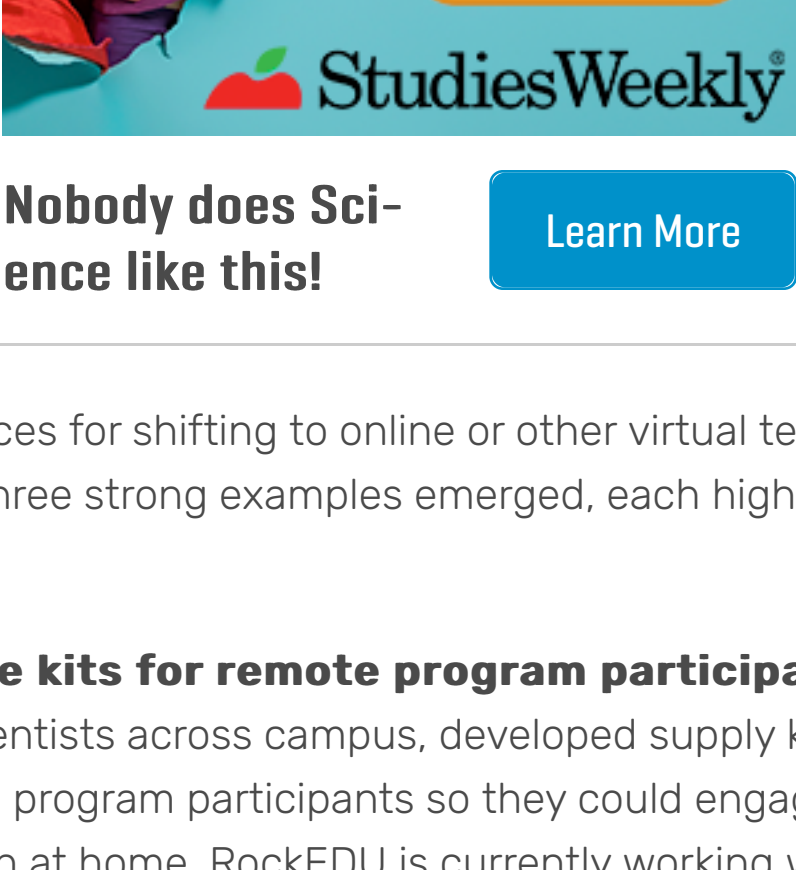


K–12 schools across the United States have been challenged to make programmatic shifts to meet the needs of youth and their families during the COVID-19 pandemic. Due to both structure and existing connections to youth and families, many out-of-school learning (OSL) programs, including Pre-College STEM Programs (PCSPs), are nimble and have the ability to be more responsive. The STEM PUSH Network (a National Science Foundation INCLUDES Alliance; <https://stempushnetwork.org>)—which brings together PCSPs as part of a national collaborative of programs and citywide STEM Ecosystems focused on program improvement and college admissions—revealed some of the ways programs have adjusted during COVID-19, as well as the ways systematic cross-program collaboration can enhance this work.

PCSPs recognized their programs needed to shift both programming and practices to meet the needs of youth and families during COVID-19. The STEM PUSH Network pivoted its work to support PCSPs in this transition and aid in disseminating effective changes and new practices. These shifts yielded important information sharing that both connected with and reached beyond STEM to offer concrete examples of the capabilities and potential capacity of OSL networks.

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PCSPs shared a variety of practices for shifting to online or other virtual teaching and learning methods that supported their students. Three strong examples emerged, each highlighting effective adjustments and practices:

- **Develop and send science kits for remote program participation.** RockEDU outreach scientists, in collaboration with scientists across campus, developed supply kits across five biology-related tracks. They sent these kits to program participants so they could engage in science observation, exploration, and experimentation at home. RockEDU is currently working with teachers to optimize these track ideas as inexpensive kits for student and classroom use. (<http://rockedu.rockefeller.edu>; Rockefeller University in New York City)
- **Engage former participants as peer leaders.** Gene Team engaged and trained former program participants as peer leaders. These youth helped with the planning to make the programming more accessible to teenagers like themselves and also served as small-group leaders helping participants with data collection and analysis, as well as supporting social interactions. (<https://www.biology.pitt.edu/k-12-outreach/gene-team>; a University of Pittsburgh–based program)
- **Adapt programming to take place in young people’s neighborhoods.** The Nature Museum TEENS program adapted its model for participants to carry out a range of urban ecological and environmental science investigations in their neighborhoods, which are typically conducted on the Nature Museum grounds and surrounding parkland. All participants received supply kits that enabled them to conduct introductory investigations focused on plants, soils, invertebrates, birds, animal behavior, and other topics, culminating in small-group, teen-developed inquiry projects focused on neighborhood ecology. (Teenagers Exploring and Explaining Nature and Science; <https://naturemuseum.org/programs-events/teens/>; the Peggy Notebaert Museum in Chicago)



During the Gene Team program students chalked the scientific names of plants in their neighborhood to raise awareness.



Student photo example of a pollination interaction between a carpenter bee and a chaste tree

Programs might further consider ways to support youth and their families in meeting other immediate needs. For instance, PCSPs in direct connection and communication with youth and their families helped in the following ways:

- **Providing support in applying for services,** such as free/reduced price internet and locally available family/mutual aid resources.
- **Partnering with local direct resource providers,** such as food banks and schools to support distribution.

In addition, locality-wide networks (such as STEM Ecosystems, <https://stemecosystems.org>) provided additional resources to support programs, including training interns who could work across programs and offering financial resources to support programmatic changes.

While the PCSPs themselves took these actions, collaboration with other programs through the STEM PUSH Network and their local STEM Ecosystems supported the dissemination and leveraging of these ideas to inform other programs looking to better support their participants. As a result, PCSPs and Ecosystems were able to address both STEM content and the broader needs of youth and families in their communities by learning from colleagues in the network. These insights demonstrate the value of organizations acting nimbly and collaboratively to address the youth and family needs resulting from the COVID-19 pandemic—needs that may be beyond the capabilities of schools to address.

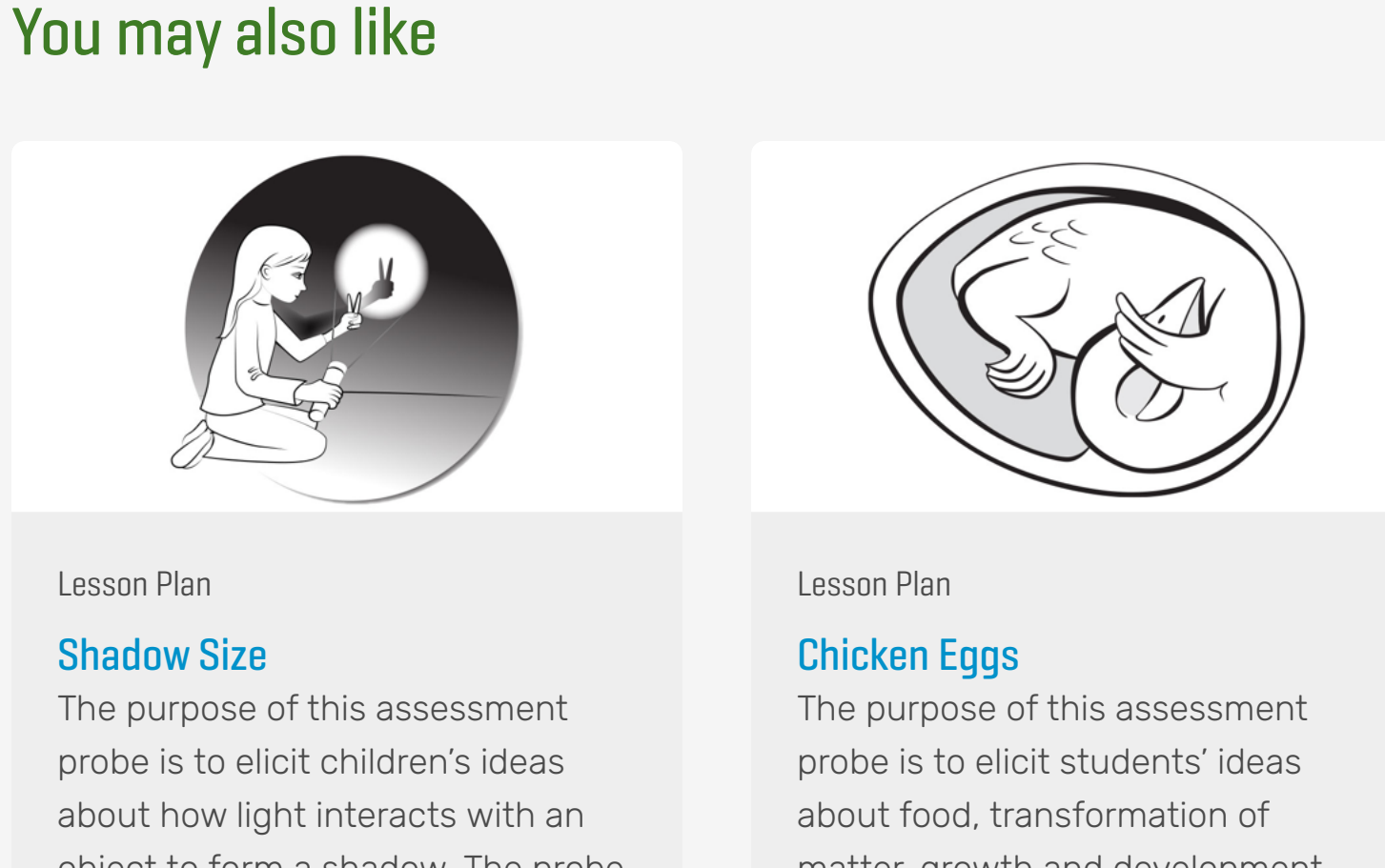
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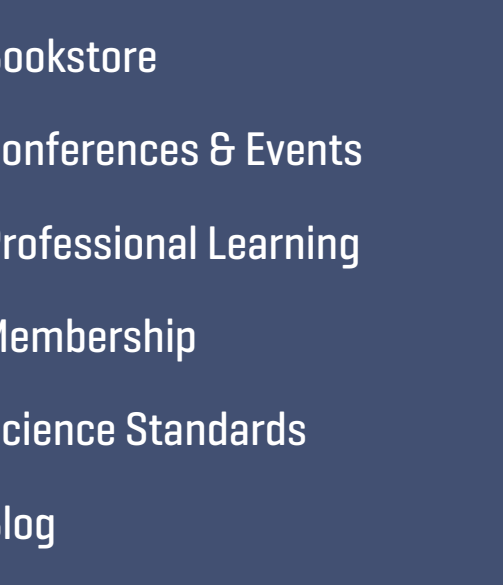
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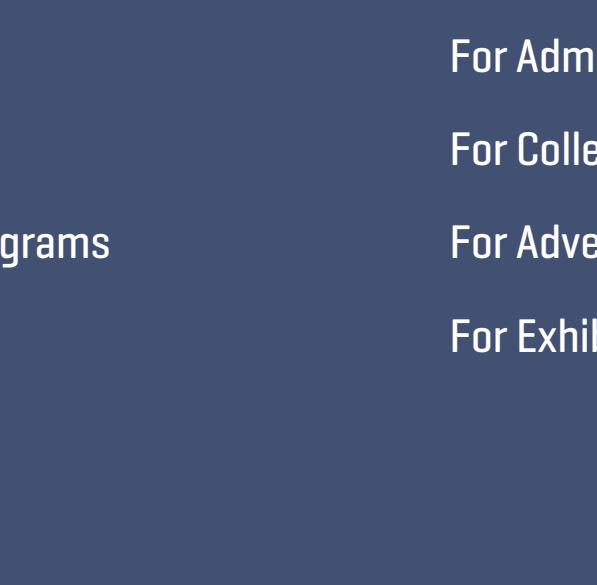
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