



Activities and Conversations about Synthetic Biology

Project Overview

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This project is funded by the Advancing Informal STEM Learning (AISL) program in the Education and Human Resources Directorate of the National Science Foundation through award no. DRL-1421179



Science centers are shifting their views of visitors

From...



Learners who may one day become scientists and engineers



To also include...



Citizens and decision-makers equipped to become active players in their communities

...Through dialogues that address global challenges



Building with Biology

- “The aim of this project is to foster activities in science museums through which public audiences can engage with scientists and engineers in **conversations about what synthetic biology is, how research in the field is carried out, and the potential products, outcomes, and implications for society** of this work.
- Researchers and publics will **explore personal and societal values and priorities** as well as research outcomes so that **both groups can learn from each other.**”

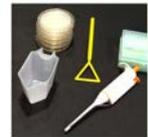


Two types of conversations

- Hands-on activities
 - Scientists facilitate the activities
 - Scientists and participants talk to each other
- Forums
 - Scientists are participants, rather than facilitators
 - Scientists have the opportunity to hear participants talk to each other, not just to them



Pilot Hands-On Activities



Spreading Cells

This is a hands-on activity where visitors practice basic lab techniques of pipetting and spreading bacterial cultures.



The Whole Picture

The Whole Picture is an activity in which visitors build a picture of a transgenic organism that synthetic biologists have already made.



VirEx: Delivering Tomorrow's Cures Today

Kids are asked to rethink the nature of viruses by building their own custom disease-fighting virus.



Vitamin A: You Choose!

This is a hands-on activity exploring different existing sources of vitamin A and how yeast can be modified to produce vitamin A.



Biofuels

from plants and algae



Some synthetic biologists are partnering with petroleum companies to create **renewable fuels from modified plants and algae** instead of solely relying on petroleum products. Renewable diesel is already available in Brazil, and certain renewable jet fuels are being used around the world. This first generation of fuels is important to reducing the world's dependence on petroleum, which could greatly reduce greenhouse gas emissions.

Image Credit: David Schribb, U.S. Navy
http://commons.wikimedia.org/wiki/File:F404_jet_engine_running_on_biofuel.jpg



Pest Control

for managing harmful insect populations



Biotechnology could allow for the development of **engineered insects**. Many pest populations are damaging and dangerous to the environment, from negatively impacting crops to spreading contagious disease. Through synthetic biology, these populations could be better controlled to protect against such destruction. The insects would live normal lives and could even reproduce when fed a diet containing a special supplement.

Image Credit: Saltzade
[http://commons.wikimedia.org/wiki/File:A_bee_swarm_Ganza_\(1may11\).1.jpg](http://commons.wikimedia.org/wiki/File:A_bee_swarm_Ganza_(1may11).1.jpg)



Pilot discussion forums



Should We Engineer the Mosquito?

Mosquitos and the diseases they carry are responsible for 46 billion deaths over the history of the human species—in context this means that mosquitos have killed more than half the humans that have ever lived. Scientists have developed a way to engineer mosquitos so that they can't spread disease as well. Some of these mosquitos have even been released into communities. Consider two case studies and share your views on the future of mosquito engineering.

Developed by the Museum of Science and AAAS

Topics: Disease and Medicine, Environment, Society, Policy, and Economics

Audience: Ages 12 - Adult, Informal Science Educators, Scientists

Product Category: Forums, Long Activities



Pilot Orientations







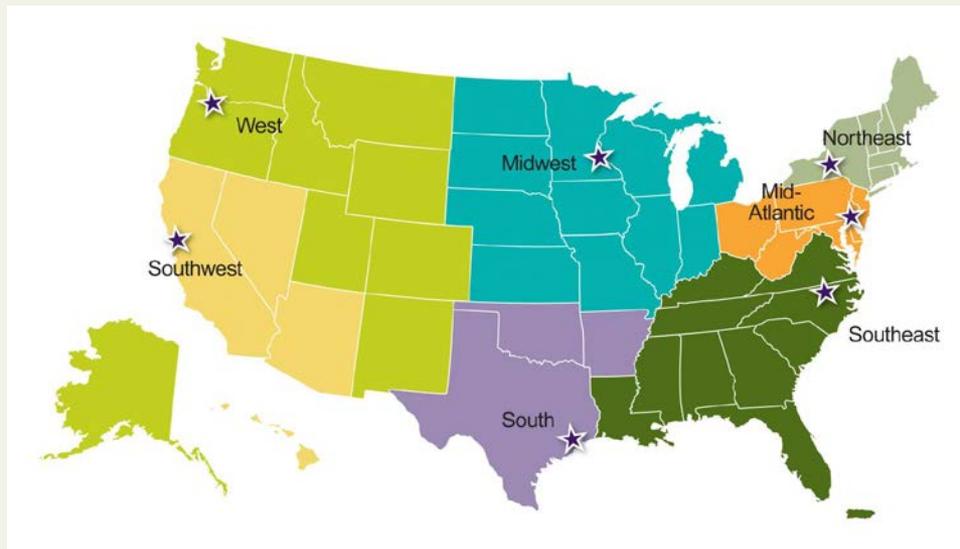


Host a Building With Biology Event!

- 200 US sites will be chosen to receive a free kit
- Host site application is online and open!

<http://buildingwithbiology.org/get-involved>

- Scientist recruitment has also begun



Project Timeline

- **February 1, 2016:** Deadline to submit application (online at buildingwithbiology.org now!)
- **March 1, 2016:** Notification of award decisions
- **June 2016:** Kits delivered to selected host sites
- **Mid-June -September, 2016:** Host a Building with Biology event
- **Report on Activities:** Within 3 weeks of hosting an event

Thank you!

Project Website & Application: <http://buildingwithbiology.org>

Inquiries:
<http://buildingwithbiology.org/contact-us>

Twitter: #buildingwithbiology

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