

Learning objectives

- Synthetic biologists solve problems by applying engineering principles to living materials.
- We all have a role in shaping the development and use of new technologies.
- Synthetic biology may provide solutions to problems in areas such as food security, healthcare, energy, and the environment.

Conversation questions

- Why would you be comfortable eating some engineered foods? What would make you feel cautious about others?
- What kinds of problems are researchers trying to solve with the engineered foods shown on the activity cards?
- What do you like or dislike about the solutions presented on the activity cards? Can you think of different solutions?

Materials

- Activity and facilitator guides
- Activity sign and holder
- Playing cards (shaped like foods)
- Red, orange, and green plates
- Red, orange, and green plate labels
- Place card holders (3)
- Reference sheets: Traditional Agricultural Breeding, Genetic Engineering, and Synthetic Biology

Plates and place card holders can be found online or from restaurant supply stores. All written activity materials and graphics can be downloaded from buildingwithbiology.org.

Notes to the presenter

Preparation: Before beginning this activity, take some time to become familiar with the food cards. Set up the plates with their matching labels in a place card holder above them:

Green = Eat it!

Orange = Think about it!

Red = No way!

Audiences: You can adjust this game to work for different audiences. Show visitors the front side of the food cards (with the pictures) and let them choose where to place each card. The back sides of the cards provide additional information. Some visitors may prefer to read the back sides of the cards themselves, but you may want to read them (or paraphrase them) for younger visitors.

Tailor the amount of information you initially share depending on the age and interest of the visitors. Remember that you can always share more information if visitors ask questions! You might also provide a particular selection of the cards for different groups. Finally, you might

choose to not include the Golden Rice food card, since Golden Rice is a genetically modified organism (GMO) rather than a food created through synthetic biology.

Conversation: This activity is designed to promote back-and-forth conversation about ways that technology is interconnected with society. You can help encourage visitors to develop and share their own ideas by referring to the **Tips for Conversations** guide.

You can use the “**Talk about it...**” questions in the activity guide to get visitors started. (These are also summarized in the list of “Conversation questions” above.) Be sure to listen to visitors’ thoughts and opinions, and feel free to share your own opinions as well. As your group talks, help everyone to remember that there is no right or wrong answer to the questions this activity raises. We all make our own decisions about what we eat! Science provides information that can help us form opinions and make choices—but we also consider other perspectives such as cultural traditions and personal values.

If visitors seem uneasy or have questions regarding the safety and security of synthetic biology systems, you might respond that these are serious factors that scientists—and we as a society—need to consider. As with many new technologies, there are important ethical and social questions surrounding research in synthetic biology. Government regulations, biosafety committees, scientific transparency, and informed citizens help to make sure that these technologies maximize benefits and minimize risks. Together, we all have a role in shaping how technologies are developed and used.

Passports: In your activity box, you’ll find a marker stamp. This stamp is for the Building with Biology event passports. Each facilitator will need to be prepared to stamp visitors’ passports if guests ask them a question and/ or share what they think about synthetic biology. Facilitators who are scientists should wear “I’m a scientist” stickers at the event and should be ready to stamp passports if guests talk to them. Your event may choose not to use the passports, and that’s fine, too.

Related educational resources

The NISE Network website (www.nisenet.org) contains additional training resources to help scientists and educators have conversations with museum visitors about technology and society:

http://www.nisenet.org/catalog/tools_guides/nano_society_training_materials

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This activity is a modified version of the “Would You Eat That?” activity developed by the Science Museum of Minnesota for the Building with Biology pilot project.

Food card illustrations, Emily Maletz for the NISE Network.

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