

Biotech & Society—Let’s Talk

Technologies and society influence each other. Imagine yourself as a different person in another part of the world and learn what biotechnologies might be important to you.

Try this!

1. Look at the orange cards with different biotechnologies. Which one do you find interesting and/or important in your life?
2. Spin the character wheel and see which character the arrow lands on.
3. Read the biography of the selected character on the blue character card and pretend you’re that person.
4. Do you think that character would decide that the same technologies you chose are important? If not, switch your card with another biotechnology card that you think is more important for that person.
5. Share your thoughts on why you chose your biotechnology card for that character. Was it difficult to find an appropriate biotechnology for many of the characters?



What’s going on?

Different people think different biotechnologies are important. You might put more importance on a biotechnology that someone else from your family, or someone else in a different part of the world, would not. Sometimes, it’s hard for us to know which biotechnologies another person might value.

People’s values determine which technologies are made and used. We all make decisions related to technologies – as individuals and as a society.

For example, agriculture is a priority for most of the world, so a lot of the global economy goes toward funding in farming. Agriculture is also a priority for many parents, who feed their children the food items grown on farms around the world or are affected by the variable costs of different food items.



How is this biotech?



DNA fingerprinting can be used to analyze food and wine

Biotechnologies and society influence each other. People’s values shape how biotechnologies are developed and adopted. In different countries, a majority of the work developing new biotechnologies goes toward applications that are important to the country’s population. These efforts reflect what we collectively think is important and also reveal the limited accessibility of these technologies between wealthy and developing countries.

Biotechnology uses different areas of science and engineering, including chemistry, biology, and physics to name a few, to the manipulation and study of biological systems and materials. Biotechnology can be applied to medicine in the development of more efficient and low-cost drugs and agriculture in creating pest and rot resistant crops.

Visual Step-by-step Procedure

1. Distribute the orange biotechnology cards on the table face up so participants can see the descriptions
2. Have participants gather around the biotech cards and each select one biotech card that they find interesting. Have participants hold on to their cards for the next step.
3. Select one participant to spin the wheel of characters and wait until the wheel stops spinning. Announce the character the arrow lands on.
4. Read the biography of the character from the blue character card out loud so participants can hear. Then leave the card on the table face up so that participants can see the description.
5. Ask participants to pretend to be the person on the selected character card. Then ask them to consider if their biotechnology card would still be important for that character. If they think it is not an important technology for the character, have them switch their card with another technology card still available on the table that they think is more appropriate.
6. Go around the table and have each participant briefly explain why they chose their biotechnology card for the selected character. Also ask if anyone had a difficult time finding an appropriate technology card for the character.
7. Repeat the activity, having the participants hold on to the biotechnology card they last picked up. When the activity is done, reset the table by placing all biotechnology cards back on the table.



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Learning Objectives


1. Technologies and society influence each other
2. People’s values shape how biotechnologies are developed and adopted

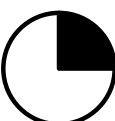
Materials

- 14 character cards (blue) and 20 biotechnology (orange) playing cards
- Spinning wheel with character panels

Activity Diagram



 Set-up
5 minutes

 Program
10 - 15 minutes

 Clean up
5 minutes

Notes to the presenter

SAFETY: Some participants can get excited during the activity and may not pay attention to their surroundings. Make sure that there is enough space for the players to move around and clear the ground of low objects that players could trip over. The activity is meant to stimulate conversations and debates about social issues and biotechnology, which may cause some participants to become agitated or uncomfortable. The facilitator should know how to facilitate controversial topics and have some background knowledge of biotechnology and its effects on society.

Before doing this activity: Select 7 character cards and the “Yourself” character card and place them on the character wheel. You can change out the character cards any time during the activity but always keep one section with the “Yourself” card. Place the biotechnology cards on the table in front of the character wheel face up and give the participants time to read the cards before they make their decision.

Tips:

- The facilitator should review biotechnology topics before running the activity so they are comfortable guiding discussions and answering questions. They must be comfortable facilitating discussions on controversial topics with a group of people of varying ages. Before doing the activity with visitors, the facilitator should become familiar with the cards and try it out a few times with a friendly audience.
- The game is ideally suited for 5-10 participants from age 7 and up.
- The game should be introduced with a brief explanation of what biotechnology is for those who don’t know. Participants should be told that the game introduces a wide variety of existing and future biotechnologies, and they will play as the character that is selected from the character wheel.

- The facilitator should emphasize that the selected biotechnology card is a technology the character would find interesting, relevant, important, or debatable based off the character card's situation. For example, the UK supermarket manager could select the test tube burger biotechnology card not because he would be interested in eating it but because he finds it an important topic to discuss.
- The length of time of this exercise can vary based on time available and the engagement of the players. 10-15 minutes for the participant interactions is usually enough.
- Participants may ask if they selected the right or wrong biotechnology card for a given character. It's best to simply tell them that there is no right or wrong answers as long as you find a way to connect the biotechnology card to the character.
- The key to the game is the discussion at the end of each round, where the facilitator asks each audience member to reflect on what they chose and explain why they chose their biotechnology card. The facilitator can ask questions to get the audience to reflect on their selection. Some suggested questions are:
 - "Were the characters the types of people you think of as biotechnology users?"
 - "Did anyone have a difficult time finding a biotechnology card for a character? Why?"
- The following background facts can be used to inform the players how the game was created in an attempt to reflect what is happening around the globe:
 - The character cards are a loose representation of people from around the world.
 - The character cards are meant to get the participants to realize that there are a lot of seemingly average people that use biotechnology in some form.
 - The biotechnology cards are drawn from past and current lists of research and commercial products developed around the world and published in journals and website sources which are cited on the bottom of each card. These sources aren't representative of all existing biotechnologies. Technologies that have received more public attention than most are more likely to be included here. The biotechnology cards were also reviewed by experts in the science field, including informal science educators, and academic and industry researchers.

Cleanup: Collect all the biotechnology and character cards and store with the character wheel.

Related educational resources

The World Biotech Tour website (www.worldbiotechtour.org/activities) contains additional resources to introduce visitors to the relationship between biotechnology and society:

- Biotech & Society – *PlayDecide.eu*
- Media include – *Let's talk How to Video*

Credits and rights

The social impact activity was adapted from: PlayDecide.eu

The activity design and formatting was adapted from the NISE Network activity *Nano Around the World card game*. Sciencenter, Ithaca, NY. Copyright 2012.

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Images courtesy of the Association of Science-Technology Centers, Carlin Hsueh. 2015



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