

# Neuro Futures Card Game

## FACILITATOR GUIDE

### Materials

- Technology Cards
- People Cards
- Tokens (10 per player, each set of 10 should be a different color)
- Optional: table sign

**10–20 min****2–6 players**

### Learning Objectives

- People's values determine which technologies are developed and used.
- New technologies change society, sometimes in unexpected ways.
- Scientists, engineers, and designers use their creativity to invent things and imagine the future, just like you do.
- Brain research benefits from many perspectives, including yours.

### Big Questions

- How might future brain technologies change our society?
- How can we include many diverse perspectives and priorities in the development of brain technologies?

**Note to Facilitator:** This activity is designed as an open-ended, conversational experience. There are no right or wrong answers; the goal is to facilitate self-reflection and dialogue among participants. The game consists of two rounds and a short debrief, requiring a total of 10–20 minutes. It works best with a small group (2–6 players), though a single player will also work.

### Invitation for Visitors

*"Would you like to play a game exploring the future of brain technology?"*

# Playing the Game

## ROUND 1

Lay out the Technology Cards on the table, facing participants.

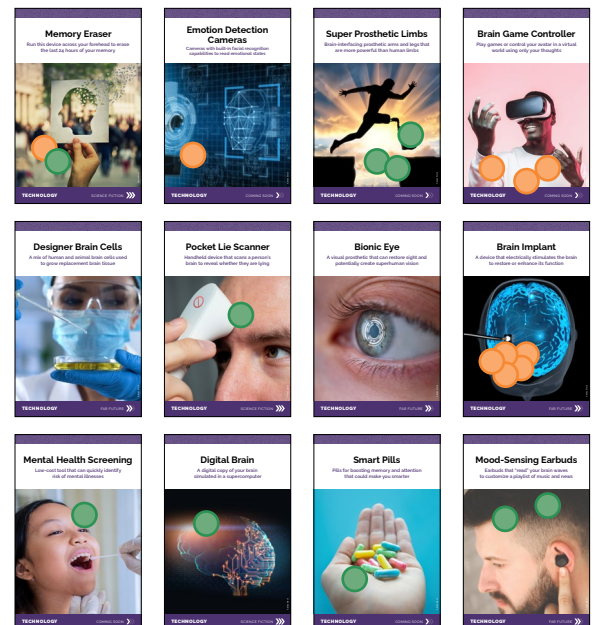
*“These are some technologies related to the human brain that are in various stages of development—they don’t exist yet, or they exist in clinical trials but are not widely available. Take a moment to look over the different cards; there’s more information on the back if you’d like more details.”*

Give each participant a set of 10 tokens (each person gets a different color).

*“You have 10 tokens that you can place on the cards to indicate which technologies you’d most like to see developed. You can use them however you want—place them all on one technology or spread them out over many.”*

While participants are placing their tokens, discuss their reasoning.

*“Why are these technologies your top priorities? Are there any technologies here that you definitely do NOT want to see, that you think could be dangerous or scary?”*



## ROUND 2

Give each participant a People Card (or invite them to draw one randomly).

*“Now, instead of choosing from your own perspective, you’re going to take on the perspective of the person on your card. Take a moment to read about them and try to put yourself in their shoes.”*

Invite participants to redistribute their tokens according to the priorities of the character. (If only one or two people are playing, you can give them a new color of tokens to use instead.)

*“What technologies do you think [name of character] would most want to see developed?”*

Again, discuss their reasoning as they place the tokens.

*“Why would [name of character] be interested in these technologies? Are there any technologies here you think they would definitely NOT want to see developed?”*

## DEBRIEF

Point out differences between the participants' own priorities and their characters' priorities, and/or differences among the characters.

*"So it seems like different people have different needs and wants and values when it comes to the future of brain technology. Given these conflicting priorities, how do you think we as a society should decide which research and development to pursue?"*

*"How can we maximize the benefits of a given technology while minimizing the risks? Are there some technologies that are just too risky to pursue, even if they might benefit some people? Who decides?"*

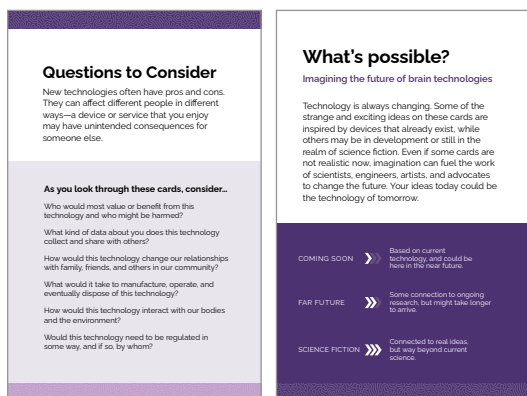
Thank everyone for participating and emphasize that there are no right or wrong answers, that the goal of this game is to help us start thinking about these societal and ethical dilemmas before such technologies become widely available. Having these kinds of conversations can help prepare us to create the future we want to see.

## Game Adaptations

### Young Participant Adaptation

For groups with children under ~10 years old, use only six Technology Cards—try the Brain Game Controller, Super Prosthetic Limbs, Pocket Lie Scanner, Mood-Sensing Earbuds, Emotion Detection Cameras, and Bionic Eye. Ask players to pick their favorite card and place a token on it, instead of giving them all 10 tokens. (You might also ask if they have a least favorite card.)

For Round 2, you may want to give the whole group a single People Card to discuss together instead of assigning one per player; use a card representing a "type" of person that the child is likely to have some experience interacting with (e.g., Edith, whom you might describe as "an old grandma," or Malik, whom you might describe as "a kid who loves video games"). Again, ask players to place a single token (of a different color) to indicate the character's favorite technology.



### Extra Cards

The Technology Cards deck includes an extra card with "Questions to Consider" on one side, and on the reverse, a key to the future timeline icons shown in the upper right corner of each Technology Card. This card is mostly intended for your own reference as the facilitator.

The Technology Cards deck also includes a blank card that invites visitors to design their own brain technology, which could be photocopied and used as an additional activity in combination with the game. The People Cards deck also includes a blank card inviting people to describe themselves and their own hopes for the future, which could similarly be photocopied and completed by participants.

The image shows two sample cards side-by-side. The left card has a purple header and footer. The header says "You Design the Future!" and "Imagine a new brain-related invention". The footer says "TECHNOLOGY". The card has a large white box for drawing and a small box at the bottom labeled "NAME OF YOUR INVENTION:". The right card has an orange header and footer. The header says "You!". The footer says "PEOPLE". The card has a large white box for writing and a small box at the bottom with the text: "Think about yourself, your friends, and your family. What do you like to do? How do brain technologies help you now, or how might they help you in the future? How might they create harm or challenges?"

## Large Group Adaptation

For an event or classroom setting with a larger group, the Technology Cards can be used for a different activity that invites participants to consider them from a policymaking perspective (time required: 30–45 minutes). Introduce the activity with the following scenario:

*"Imagine that you have been asked to serve on a committee making recommendations to Congress about how to regulate new brain-related technologies. These technologies have the potential to benefit society, but they also carry potential risks and unintended consequences. Your job is to come up with the rules that should govern their use, to maximize the potential benefits and minimize the potential harms."*

Split everyone into groups of 3–4 participants and give each small group their own Technology Card. Invite them to discuss the following three questions:

1. What are the potential benefits of this technology?
2. What are the potential risks or unintended consequences of this technology?
3. How should this technology be regulated to maximize benefits and minimize risks? *(Think about: Who should have access to it? Should some uses be banned? Are there rules that users should have to follow? Consider any medical uses, recreational uses, use in schools and workplaces, use by companies, governments, individuals, etc.)*

You may wish to print these questions as a worksheet for the groups to take notes on. Allow 15–20 minutes for discussion, circulating among the groups to answer any questions and encourage deeper reflection as needed. Then bring everyone back to share with the larger group; encourage participants to ask each other questions and to notice common themes (e.g., privacy concerns, restoring vs. enhancing function, issues of access and equity).