

Futures Thinking: How to Empower Audiences to Use Voices and Values to Shape Our World



Welcome!

ASTC Conference, Phoenix, AZ | Thursday, September 17, 2026

Introductions & Agenda



- **Session Chair**

- **Christina Leavell**, Community Manager, NISE Network, Arizona State University, Tempe, AZ



- **Introduction to Futures Thinking**

- **Rae Ostman**, Research Professor, Arizona State University, Tempe, AZ
- **Nicholas Weller**, Research Assistant Professor, Arizona State University, Tempe, AZ



- **Hands-on Activity**

- **Darrell Porcello**, Director of National STEM Networks, Children's Creativity Museum, San Francisco, CA
- **Peregrine Bratschi**, Program Manager for STEM Engagement, Museum of Life and Science, Durham, NC



Introduction to Futures Thinking

Rae Ostman and Nicholas Weller

Key ideas for futures thinking

There are many possible futures:

- The future is not predetermined.
- The future is not predictable.
- The future can be influenced by our choices in the present.

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So that means:

- We have an opportunity and responsibility to think about the future.
- Multiple perspectives are essential to shaping our preferred future.

Futures consciousness

Capacity to understand, anticipate, prepare for, and embrace the future, including:

- Time perspective
- Agency beliefs
- Openness to alternatives
- Systems perception
- Concern for others

From: Lalot, F., et al. (2024). The seeds of tomorrow, *Futures*,
<https://doi.org/10.1016/j.futures.2024.103419>

Futures thinking in informal learning settings

Examples:

- Exhibition
- Short program
- Long program
- Community engagement

Cross-cutting themes and techniques

Exhibition

Arizona Science Center



Exhibition overview

Futures focus

- Earth and climate science
- Space science research and discovery

Four areas (2,500 sq ft)

- Intro theater
- Ranch house
- R&D lab
- AI hub

Components

- Narrative videos
- Scenic elements
- Hands-on activities
- Media



On display at Arizona Science Center 2023 – 2025

Goals related to futures

Exhibition practice

- Use theory and methods from futures studies

Visitor learning objectives

- Develop new ways of thinking about the future and about their role making an impact on the future they envision
- Develop a sense of self-efficacy related to using STEM to meet challenges of the future



Stills from entry video

Methods from experiential futures

- Present a plausible future world through physical spaces and objects
- Help to bridge abstract ideas of the future with people's embodied experience of the present
- Allow people to experience, reflect on, and talk about this version of the future



Methods from exhibition practice

- Storytelling through videos
- World-building through scenic elements
- Hands-on components



Ranch house

Short Program

Local High Schools and
Arizona Science Center

CLIMATE FUTURES



Inspire Stories of the Future

- Video: Short skits about future scenarios for Phoenix
- Character Cards: Invited reflection about how different people might feel in those futures



DAD

Eric is a stay-at-home dad. In addition to taking care of his kids and posting about their adventures on social media, he enjoys watching NASCAR and gardening. He and his partner are trying to decide whether to have more kids. They're not sure they can afford to on one income.



Present Your Future

- Young people created their own scenarios and characters that lived in them
- Shared their futures through skits



“Make Games, Save the Planet”

Young people as game designers and
science engagement leaders

Twelve young people created
a narrative game
about the local
impacts of climate
change.



Program activities

explored climate futures and built skills in game design, storytelling, and science communication.



**Young people
led the game
development**
and playtesting,
including
worldbuilding,
visual design, story,
and mechanics.



**The game
immerses players**
in a future world,
where their choices
determine the
outcome
of the story.



Young people **on things they learned**

“Even as teenagers **we can learn and make differences within a society that doesn't say we can.**

And it just really empowered me to be able to make more choices in regards to things like what do I want to do with my future?”

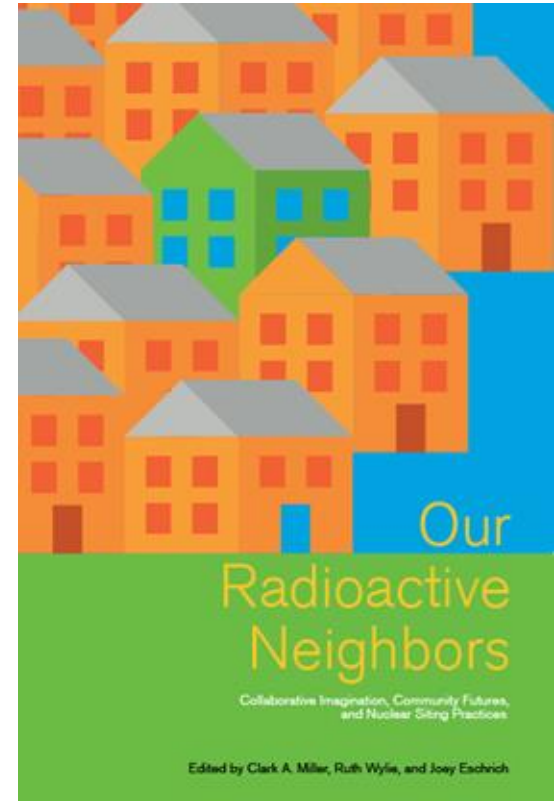
Community Engagement

Statewide
Arizona Science Center,
Libraries, Schools



Connecting Science Fiction and Engagement

- Broader project: Involving communities in decisions about nuclear waste management
- Four science fiction authors wrote stories about the near future of nuclear waste management
 - How could communities be involved?
 - What challenges might arise?
 - How do we think about responsibility and time?



Connecting Science Fiction and Engagement

- Invited community and science fiction authors
- Authors discussed the stories
- Project team shared what the public said at community meetings
- Attendees highlighted what they wanted the Department of Energy to know about their views



Themes & Techniques

Storytelling & Characters

Inspire and relate to stories of the future

Participatory

Invite diverse perspectives to contribute to stories of the future



Themes & Techniques

Values & Choices

Using the future to reflect on our values and choices today and how they shape tomorrow

STEM Inspired

Build on today's socio-scientific challenges and rigorous research



Hands-on Activity

Darrell Porcello and Peregrine Bratschi

Let's imagine a
community space
for the Year 2100

Future technologies

Use them as inspiration. Let the technologies spark ideas about what could be possible in your future community.

Question the futures they might support or prevent. Think about what each technology could enable or make more difficult.

It's up to you. Use, adapt, combine, reject, or rethink the technologies in whatever ways support your creative process.



Collaborative drawing

Create a shared vision. Work together to draw what your future community might look like, adding ideas that matter to you.

Use the drawing to think and talk together. The drawing makes ideas visible so you can build on one another's ideas and discuss choices.

Revise it as new ideas or challenges arise. Change parts of the drawing as the group considers new information and needs.



Imagining the Future: 2100

COLLECTIVE DREAMS FOR THE FUTURE
ENVISIONED TOGETHER BY DURHAM FAMILIES

IMAGINE **DURHAM** 2100

SUEÑOS COLECTIVOS PARA EL FUTURO, IMAGINADOS CONJUNTAMENTE POR LAS FAMILIAS DE DURHAM

We can try to predict the Earth's future with complex models of the atmosphere or by analyzing data from sensors and satellites.

But the future also depends on human decisions—by people we'll never meet, and by people just like us.

Our hopes, dreams, needs and values shape the future of our city and our world.

Hayti Heritage Center and the Museum of Life and Science brought families together to envision the Durham of 2100. Across five engagements families dreamed of what their Durham might be in 100 years. Some of their dreams reflect hope, some are whimsical, some are playful, some are fearful. These are their collective imaginings, captured on paper through art.

Podemos intentar predecir el futuro de la Tierra con complejos modelos atmosféricos o analizando los datos de sensores y satélites.

Pero el futuro también depende de decisiones humanas, de personas que nunca conoceremos y de personas como nosotros.

Nuestras esperanzas, sueños, necesidades y valores conforman el futuro de nuestra ciudad y nuestro mundo.

Hayti Heritage Center y el Museo de Vida y Ciencia reunieron a familias para imaginar, pensar y hacer sobre Durham en el año 2100.

A lo largo de cinco encuentros, las familias imaginaron lo que podría ser su Durham dentro de 100 años. Algunos de sus sueños reflejaron esperanza, fantasías divertidas e incluso temor. Lo que se ve aquí son sus visiones colectivas, plasmadas en papel a través del arte.

If these futures seem impossible, pause and ask yourself why. What about the world today stands in their way? What could change? What needs to change?

Many places speak to past choices that shape today's Durham. They look beyond to imagine an equitable, just, sustainable, and thriving future.

Dreams don't need to be realistic, to be possible. Children know this better than adults—they are experts at dreaming up possible worlds. The first step to changing the future is imagining it.

Dreaming of a vibrant future Durham requires a lot of us today. It might take 100 years of work to fulfill the dream.

Si estos futuros parecen imposibles, haz una pausa y pregúntate por qué.

¿Qué se interpone en el camino de estos futuros en el mundo actual? ¿Qué podría cambiar? ¿Qué debe cambiar?

Muchos otros hablan de decisiones pasadas que dan forma al Durham de la actualidad. Miran más allá para imaginar un futuro equitativo, justo, sostenible y próspero.

Los sueños no tienen por qué ser realistas para ser posibles. Los niños lo saben mejor que los adultos: son expertos en soñar mundos posibles.

Imaginar el futuro es el primer paso para combatir, saber con un Durham vibrante en el futuro es lo que debemos hacer hoy.

History

1. In the study of past events, particularly the recent ones.

2. In relation (something) is the original or existing state.

3. In the time or in the place where something first happened or is found.

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USDA historical aerial photos courtesy of the North Carolina Office of Archives and History, Raleigh, North Carolina



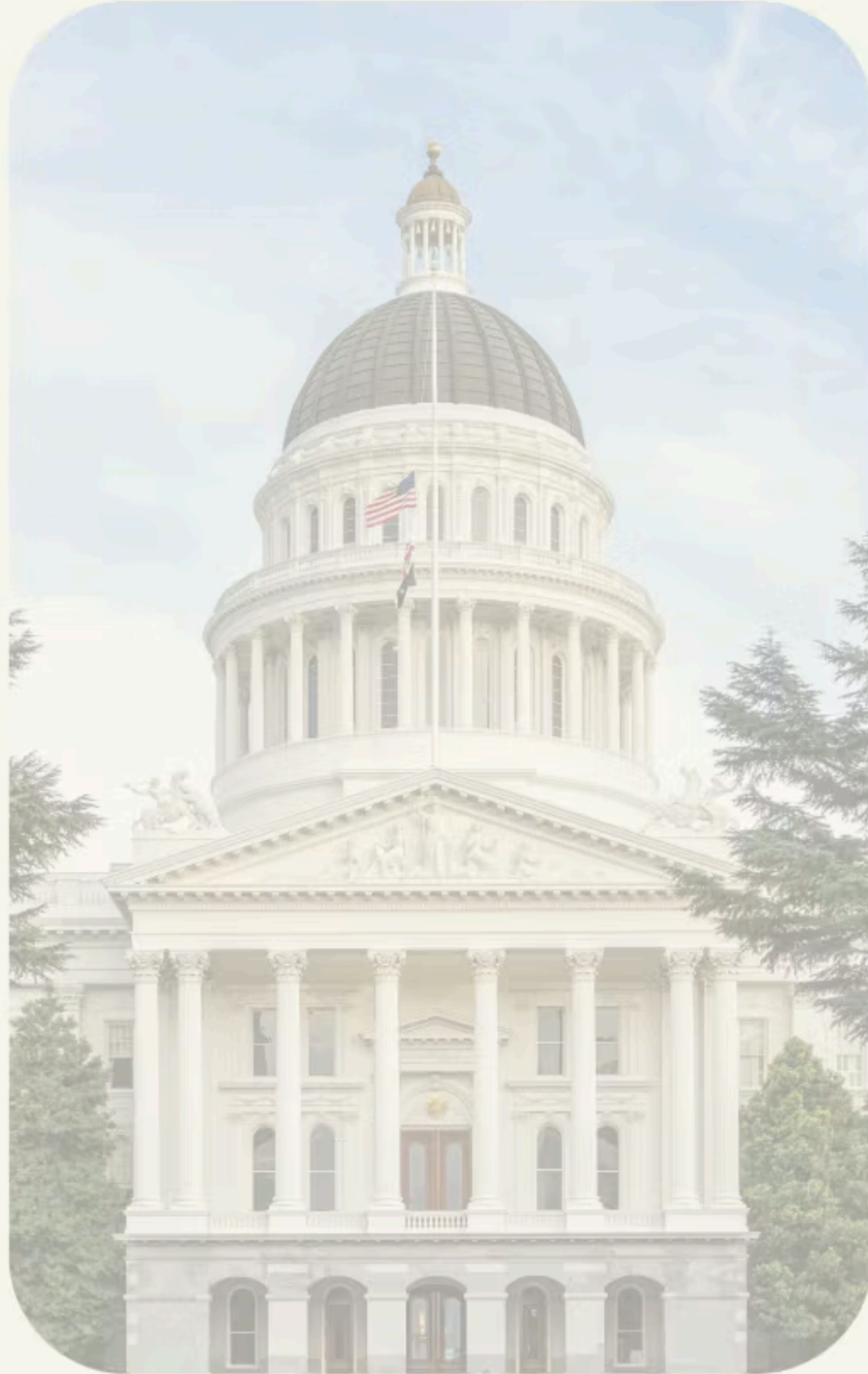


Enter words to describe the future you imagine.



Start your drawing!





STOP

The **City Council** has received concerns from constituents about your community design. Council members request a revised plan that addresses...

- 1) How are all people encouraged and supported in using your space?**
- 2) Who decides how the space is used?**
- 3) How could the success of your space negatively impact other spaces in the community?**

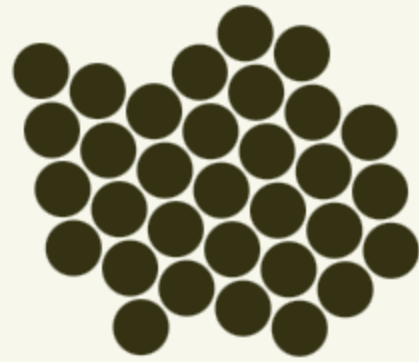
What will you do?



Pencils down. 



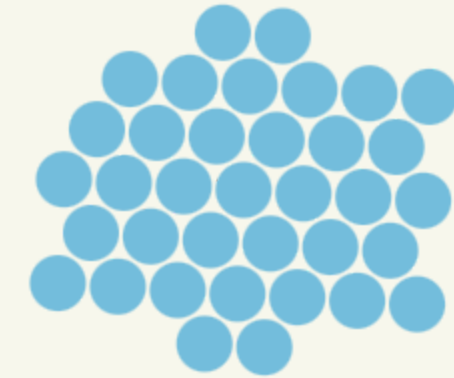
Which community needs does your space address?



32 Health and well-being



6 Security



36 Social connection



22 Recreation and play

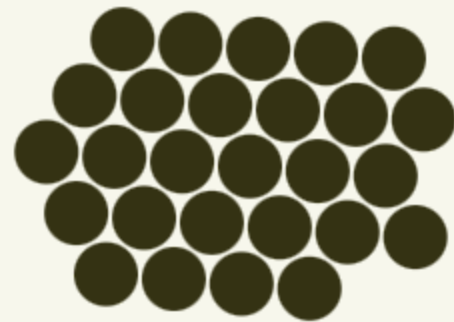


6 Work and economic opportunity



4 Something else

What did you think about most when designing your space?



27 Who could use it or might be left out



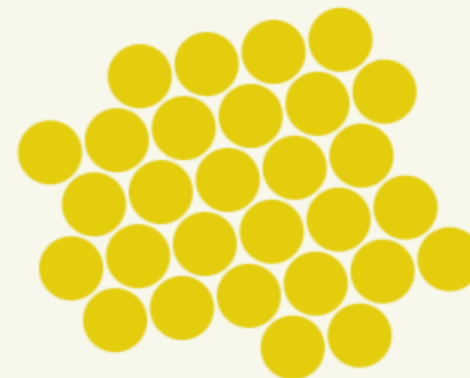
2 Safety and privacy



11 Cost for access



13 Who makes decisions

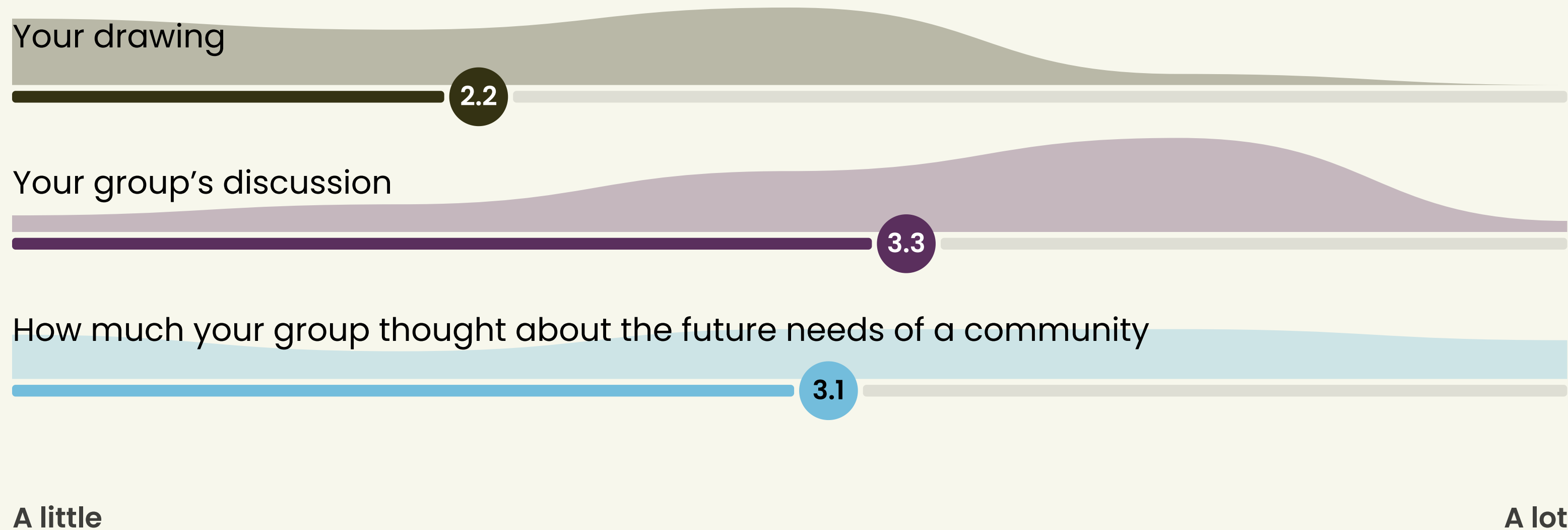


29 Impact on the community



16 How the future technology would be used

How much did the community messages change...



What would a news headline about your community space be one year after it opens?

Bunch of hippies
having a good time,
we hate this

Children are learning
to take charge and
lead a community.

A community space
for EVERYONE!

People needed to
operate community
center!

The wave of the
future!

One stop for all your
needs!

People caring for
each other.

They tried but it
kinda worked

What would a news headline about your community space be one year after it opens?

Major tech upgrade
needed just one year
after opening

Safest and most
mentally stable
community found!

New 4 year old
president elected to Tiny
Town, shaping the
future of the children's
community space.

Community E sports
team sweeps
championship

Opportunities for all
ages in new center

Un-housed community
no more! Thriving nature
community center
continues to offer deep
support for those
traditionally left behind.

Un housed create a
home for all

Community balance's
human needs with
nature and has some
interesting encounters!

What would a news headline about your community space be one year after it opens?

Integrated food system huge success

Communists are taking over America!

Geothermal power outages!

Food automatic distributor now fully providing school lunches

Novel community model leads to prosperity for all

Community center booming, other local businesses struggling.

Government stormtroopers crush community advocates. All placed in cognitive neuro prison

Green thumbs for everyone

What would a news headline about your community space be one year after it opens?

Greenspace at
community center
opens plot for
community garden

Community brings all ages
together in share living and
work space but struggles
to address community
growth impacting
neighboring communities

Community
investment
continues

Community-led
success highlights
promise for the
future

Major populations
incentivized to live in
homeless
community.

Now after that fun activity, enter words to describe the future you imagine.



🔗 Compare slides

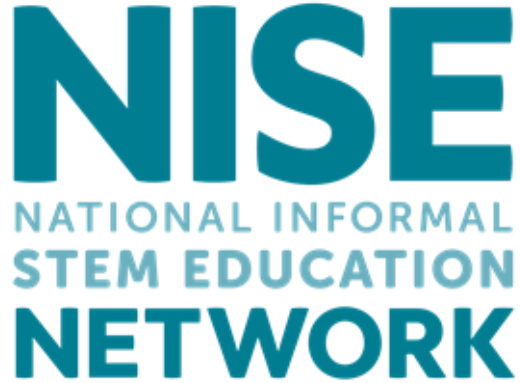
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Now after that fun activity, enter words to describe t...



Resources



Card Game



Drawing Activity

More Activities: NISENet.org/society

Thank You





Mission Future: This material is based upon work supported by NASA under cooperative agreement award number 80NSSC18M0061. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the view of the National Aeronautics and Space Administration (NASA).



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