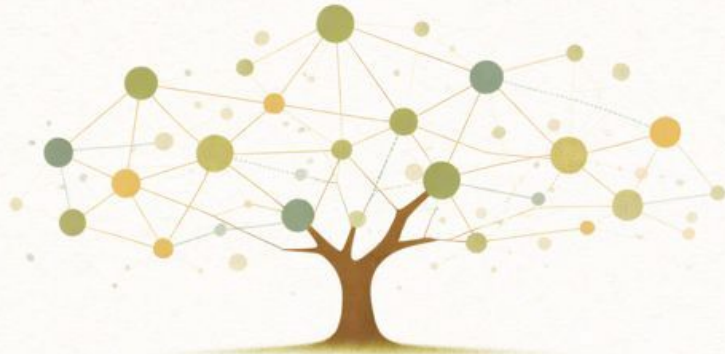


Rooted in Belonging: Learning through Connection

Rooted in Belonging: *Learning through Connection*



Rooted in Belonging: Learning Through Connection

- **Delia Meza**, Director of Family Learning and Community, New York Hall of Science, Corona, NY, *dmeza@nysci.org*
- **Catherine McCarthy**, NISE Network Director, Arizona State University, Tempe, AZ
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- **Vivian White**, Director of Education, NASA Night Sky Network, Astronomical Society of the Pacific, San Francisco, CA, *vwhite@astrosociety.org*
- **Darrell Porcello**, Director of Learning Networks, Children's Creativity Museum, San Francisco, CA, *porcello@gmail.com*

Session Agenda 1:15pm - 2:30pm

- **Session and Framing:**
 - Catherine McCarthy - What is Belonging? (10 minutes)
- **Values in Practice:**
 - Darrell Porcello- Values activity and Reflection Discussion (10 minutes)
- **Stories from the Field:** (10 minutes each)
 - **Delia Meza**, New York Hall of Science, Community Engagement and Belonging in STEM
 - **Vivian White**, NASA Night Sky Network, Astronomical Society of the Pacific, Building Belonging through Experience
- **Table Discussions:** (15 minutes)
 - What strategies and practices are you using to help people feel they belong?
- **Q&A + Conference Survey** (10 minutes)

Catherine McCarthy

Arizona State University

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What is Belonging?

Belonging refers to the feeling of being connected to a community, or place and being supported and welcomed there.

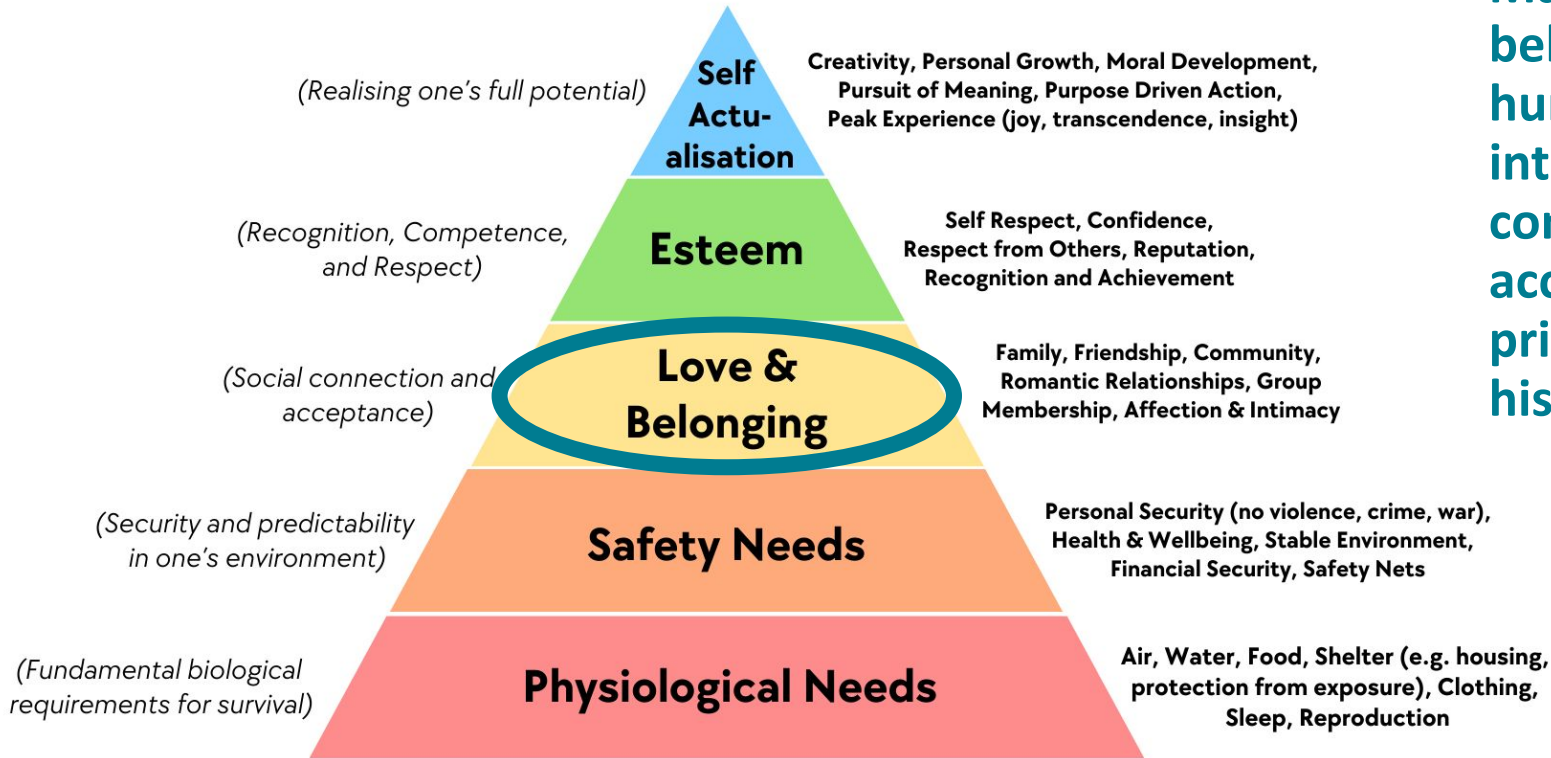
The experience of belonging can include

- **People** - connectedness through community
- Rootedness in a **Place** and
- A sense of shared **Purpose** with others



Need for Belonging (Maslow's Hierarchy of Needs)

Maslow placed belonging, the human need for interpersonal connection and acceptance, in a prime position in his hierarchy



Dimensions of Belonging



Belonging can be experienced when people are present, invited, welcomed, known, accepted, involved, supported, heard, befriended, and needed

Image Credit: Belonging Wheel,
TIES Center, University of Minnesota
Erik W. Carter & Elizabeth E. Biggs

<https://publications.ici.umn.edu/ties/peer-engagement/belonging/introduction>

Belonging Design Principles and Practices

- Belonging is both a feeling and a practice
- We can experience belonging personally and collectively
- Antidote to othering (the processes of exclusion and marginalizing people)

Image: Credit: A Resource Guide for Belonging-Builders
Othering & Belonging Institute at UC Berkeley
<https://belonging.berkeley.edu/resource-guide-belonging-builders>



Feeling like you belong can make a big difference in how well people learn

- Creates a space where learners are more willing to actively participate
- Boosts motivation and persistence
- Sense of identity - people can see themselves as capable learners or contributors
- Stress and social exclusion can impair working memory and concentration
- Increased collaboration and communication



Photo by Christi Marcheschi on Unsplash
Photo by Tim Mossholder on Unsplash

Belonging Resources

Resources on the handout

- Othering & Belonging Institute at UC Berkeley
<https://belonging.berkeley.edu/resource-guide-belonging-builders>
- TIES Center, University of Minnesota
<https://publications.ici.umn.edu/ties/peer-engagement/belonging/introduction>



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Mentoring Resources

Resources on the handout

- MENTOR National STEM mentoring resources
<https://www.mentoring.org/campaigns/stem-mentoring-month/>
- National Girls Collaborative Project role model and mentoring resources
<https://ngcproject.org/resources/role-model-and-mentoring-resources>
- SciGirls Role Model Strategies
<https://ny.pbslearningmedia.org/collection/scigirls/>
- National Academies Science of Effective Mentorship in STEMM
<https://nap.nationalacademies.org/resource/25568/interactive/>



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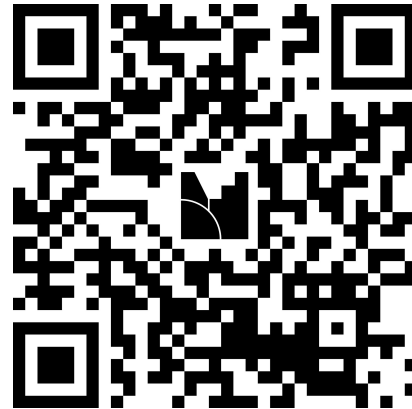
bit.ly/belong26acm

Group Poll

If you feel comfortable sharing

- Think about a time when you felt like you really belonged in a community

How did that feel
in one word?



 Mentimeter



Darrell Porcello
Director of Learning Networks,
Children's Creativity Museum,
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What Values Do You Share? Conversation Starter Activity



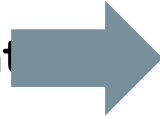
Table Conversation

What Values Do You Share?



Successful collaborations are grounded in shared values. Values shape the behavior and decision-making of an organization or collaborative group.

Everyone look through your own deck and choose 3 value cards that relates to your collaborative efforts.



Show your value cards to the others in your group and explain why you feel this value is important to your work.



Tell us what you noticed
about the values everyone
shared? ★



Are there important values
missing from
your choices?



What Values Do You Share?

- Print your own version of the cards <https://www.nisenet.org/valuescards>



<https://www.nisenet.org/stem-learning-ecosystems>

STEM Learning Ecosystem

Videos Series

1. What Are STEM Learning Ecosystems? (1.7 minutes)
2. Introduction to STEM Learning Ecosystems (6 minutes)
3. Building and Supporting Strong Partnerships (7 minutes)
4. Engaging Everyone in STEM Learning (5 minutes)
5. Creating Authentic STEM Learning Experiences (6.5 minutes)

Activities

- Depict Your Partnership
- What is Learning Conversation Starter
- What Values Do You Share? Conversation Starter

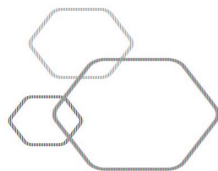
Illustrations

Illustration variations of generalized STEM Learning Ecosystems in different formats and as slides with editable text labels



<https://www.nisenet.org/stem-learning-ecosystems>

Thank You



STEM LEARN|
ECOSYSTEM

Additional STEM Learning Ecosystems resources available at

<https://www.nisenet.org/stem-learning-ecosystems>



This material is based upon work supported by NASA under cooperative agreement award number 80NSSC21M0007. 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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DESIGN MAKE PLAY • New York Hall of Science



NYSCI's Community Engagement Model and Commitment

Learning *from* and *with* our community



Cultivating a Sense of Belonging



- Reflect families' cultures and lived experiences
- Ensure language equity and accessibility
- Support different ways of learning and engaging
- Reduce barriers through family-centered supports
- Center family voice in shaping programs and decisions
- Create opportunities for families to connect with one another

Building Belonging Requires Institutional Commitment

- Belonging must be experienced consistently across NYSCI, not just in individual programs
- Community engagement requires shared ownership across departments
- Established the *Programmatic Leaders Collaborative Committee* (PLCC) to align leaders and co-create a unified approach



Community Engagement Principles of Practice (CEPOP)

Through this work, we developed NYSCI's Community Engagement Principles of Practice (CEPOP):

Principle 1: Co-design Experiences with the Audiences Served

Principle 2: Address and Reduce Barriers for Participation

Principle 3: Cultivate a Sense of Belonging

Principle 4: Sustain and Integrate Community Engagement as an Institutional Practice



Vivian White
Director of Education,
NASA Night Sky Network,
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Confidence and Curiosity:

Women and Girls at the Telescope



Girl Scouts Northern California

Children develop stereotypical views of scientists from a very early age.



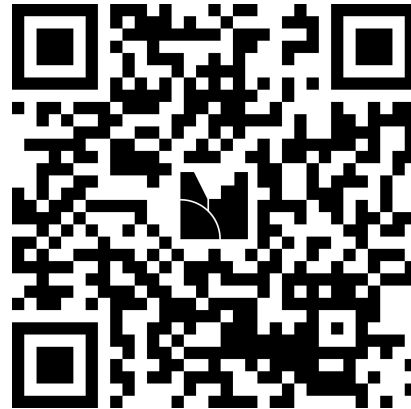
Draw A Scientist Test (DAST) - Chambers, 1983

Group Poll

If you feel comfortable sharing

- Think about a time when you felt excluded

How did you feel
in one word?



 Mentimeter





- **400+** NSN astronomy clubs
- **1000+** Solar System Ambassadors
- Average of **20 events per day!**



Picture courtesy of Girl Scouts Northern California

Amateur
astronomers
already do
great outreach.



Picture courtesy of Girl Scouts Northern California

Creating Great Girl Engagement



Picture courtesy of Night Sky Network

- Growth Mindset
- Internal Bias
- Micro-Messaging
- Telling diverse stories at the telescope

Fixed Mindset vs. Growth Mindset

Fixed Mindset:

- Born with abilities/inabilities
- Impacts how we see ourselves and each other
- **Imposter Syndrome***

*Connecting the Dots Between Mindset and Impostor Phenomenon, via Fear of Failure and Goal Orientation, in Working Adults (2021)

<https://pmc.ncbi.nlm.nih.gov/articles/PMC8636168/>

Growth Mindset:

- Abilities grow if you take time to improve!
- Try adding the word 'yet' when saying that you're not good at something
- **Failure IS an option!***

*"And if at first you don't succeed

Then dust yourself off and try again" Aaliyah, et al. (2000)

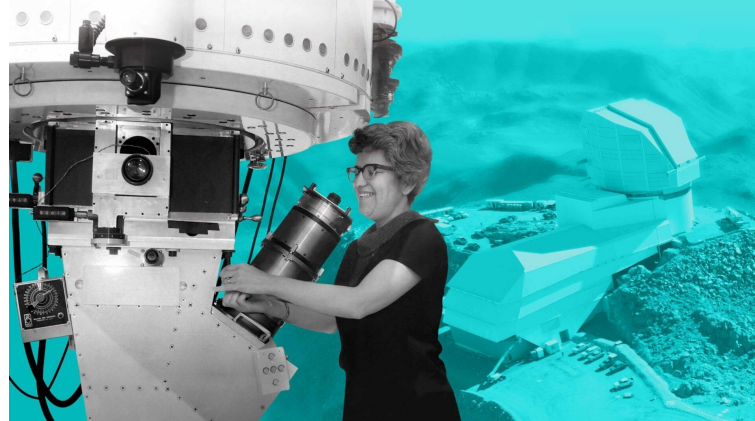
Praise the Process



Picture courtesy of Girl Scouts of Northern California

- Use statements like “Your practice is paying off!”
- Make a connection
- Encourage them to engage with astronomy

"You're showing that mistakes are just part of learning. That's how your brain grows!"



Not Just Girls; Not Just Kids

These tools are for all children and adults, making astronomy more accessible means everyone wins!



Existing Resources

- Self-guided workshops
 - bit.ly/welcomingscopes
- Continue to support the growing community of practice
 - bit.ly/astroall



Slides by Theresa Summer:
tsummer@astrosociety.org

This video series was produced by the Astronomical Society of the Pacific as part of the NASA Girl Scouts Reaching for the Stars Cooperative Agreement #NNX16AB90A. 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).

Table Discussions

Group Discussion at Tables (15 minutes)

If you feel comfortable sharing

- What strategies and practices are you using to help people feel they belong?

Belonging Resources



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**Questions
&
Conference Surveys**

**Please fill out and
give to our room volunteer**