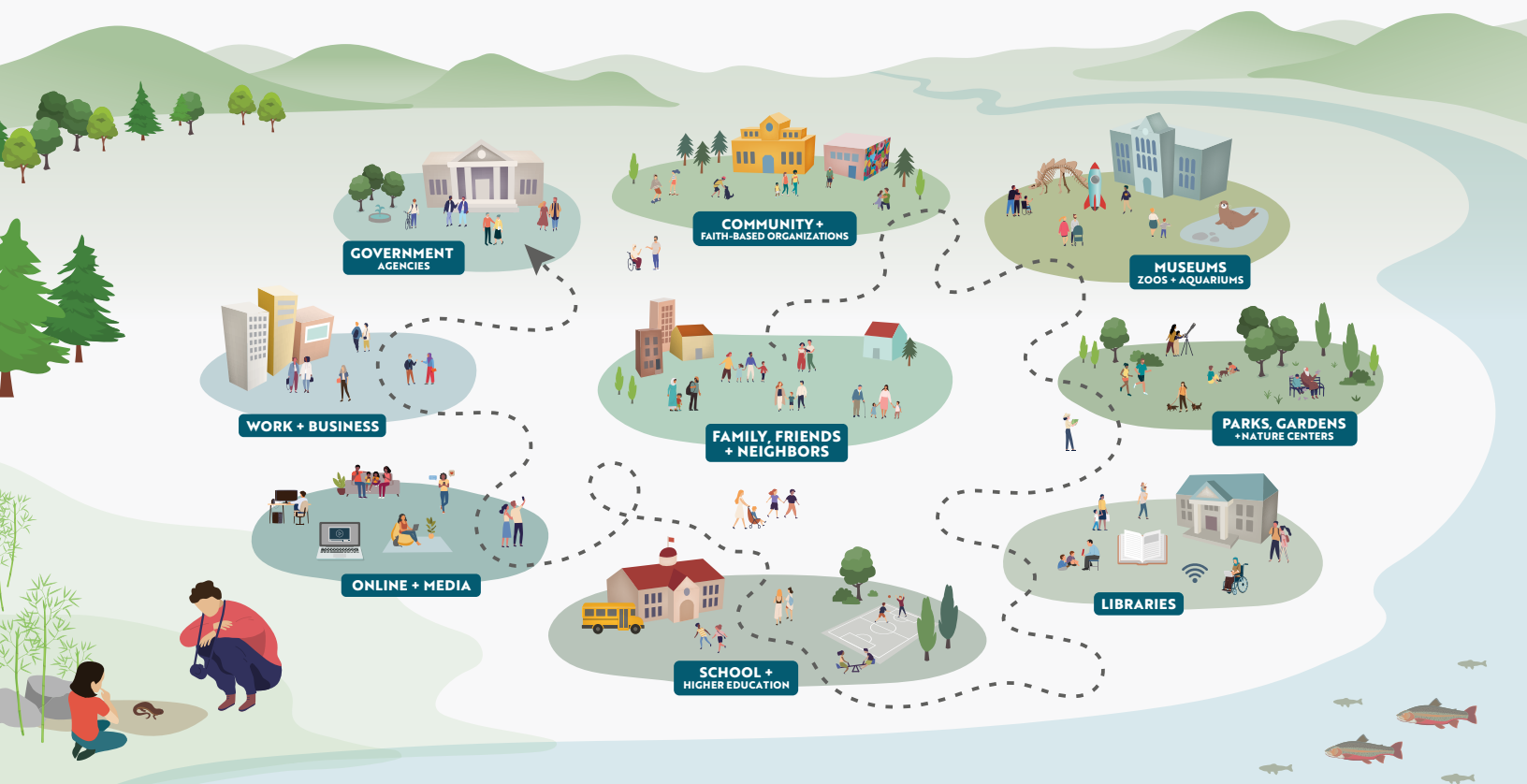


STEM Learning Ecosystems

STEM learning ecosystems are intentionally designed, community-wide partnerships that enable people to actively participate in STEM throughout their lives. Partners can include educational and cultural institutions, community and faith-based organizations, businesses, government agencies, and many more. Place-based learning ecosystems are responsive to their local context and draw on expertise and resources across a community to create experiences that are relevant to local learners.



Project overview

We used the concept of a STEM learning ecosystem to study four projects that are part of NASA's Science Activation program, located in Alaska, Arizona, North Carolina, and several states in the northeastern US. We wanted to understand how collaborations can support strong relationships across diverse partners, create inclusive and accessible opportunities to learn about Earth and space science, and promote belonging in STEM. We summarized what we learned from our inquiry in three key ideas.

Community

STEM learning ecosystems are built and sustained through intentional practices; thrive through reciprocal relationships; and are grounded in their geographic and cultural context.



Belonging

Ecosystems can broaden participation by cultivating genuine relationships among individuals and organizations; creating a flexible and transparent culture; sharing programming and resources; and prioritizing a sense of belonging. Belonging refers to the feeling of being connected to a community, place, or situation, and being supported and welcomed there.

Engagement

Authentic STEM engagement starts with understanding what is relevant to learners and communities, then creates connections to content through active learning experiences.



Relevance

Connects to identity and culture, promotes a sense of belonging, and fosters inclusion

STEM content

Includes community observations, scientific data, assets, and a range of expert perspectives

Experience design

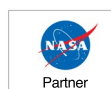
Supports active learning, encourages dialogue, and builds on community strengths



Resources

The STEM Learning Ecosystems team has professional learning resources available for free download from the NISE Network: nisenet.org/stem-learning-ecosystems

The STEM Learning Ecosystems team includes: Center for Innovation in Informal STEM Learning at Arizona State University; Arctic and Earth SIGNs led by the University of Alaska Fairbanks; Rural Activation and Innovation Network, currently led by Arizona Science Center; Smoky Mountains STEM Collaborative led by Southwestern Community College; Learning Ecosystems Northeast led by Gulf of Maine Research Institute; the National Informal STEM Education Network; and the Museum of Science, Boston.



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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