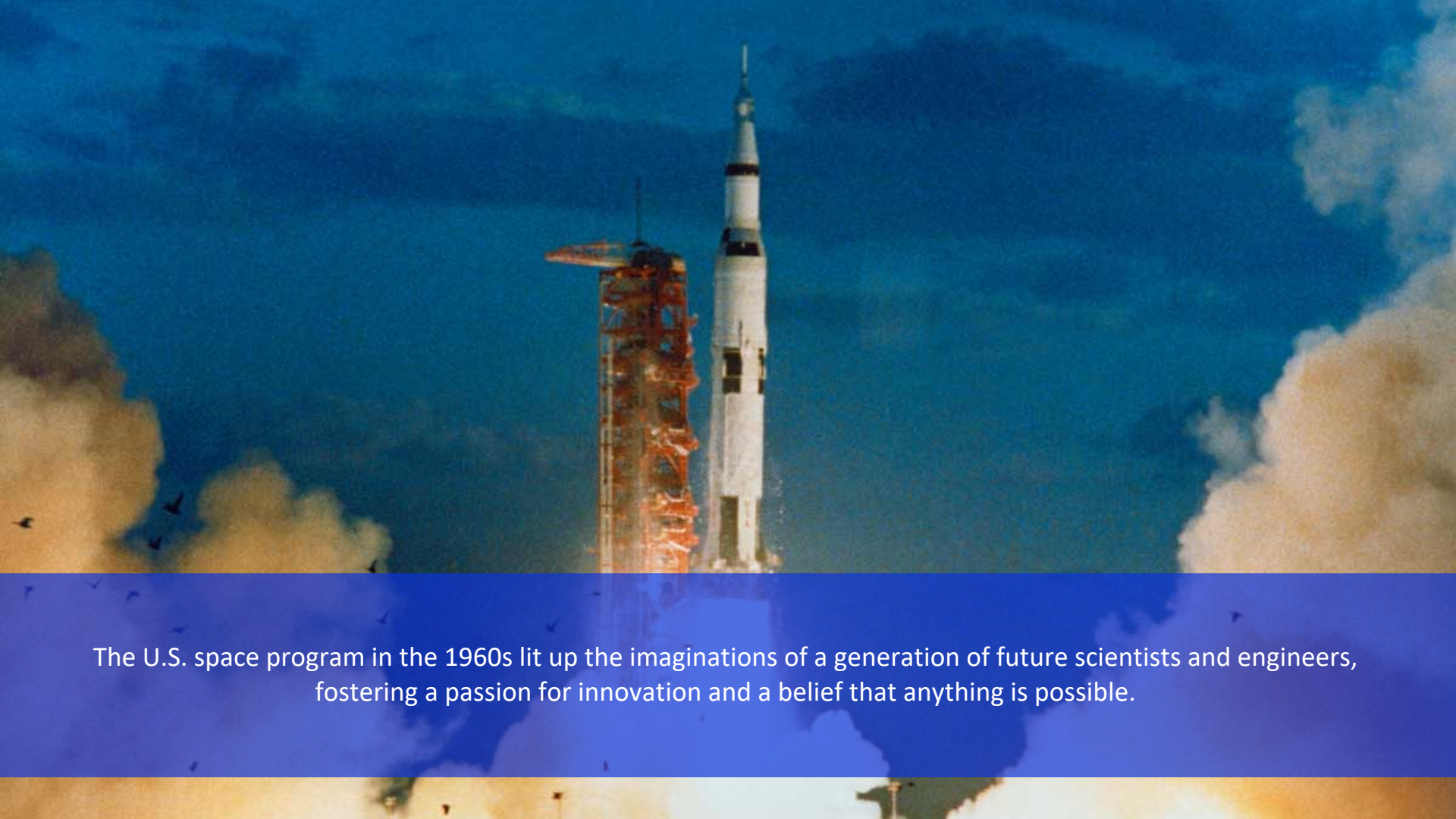
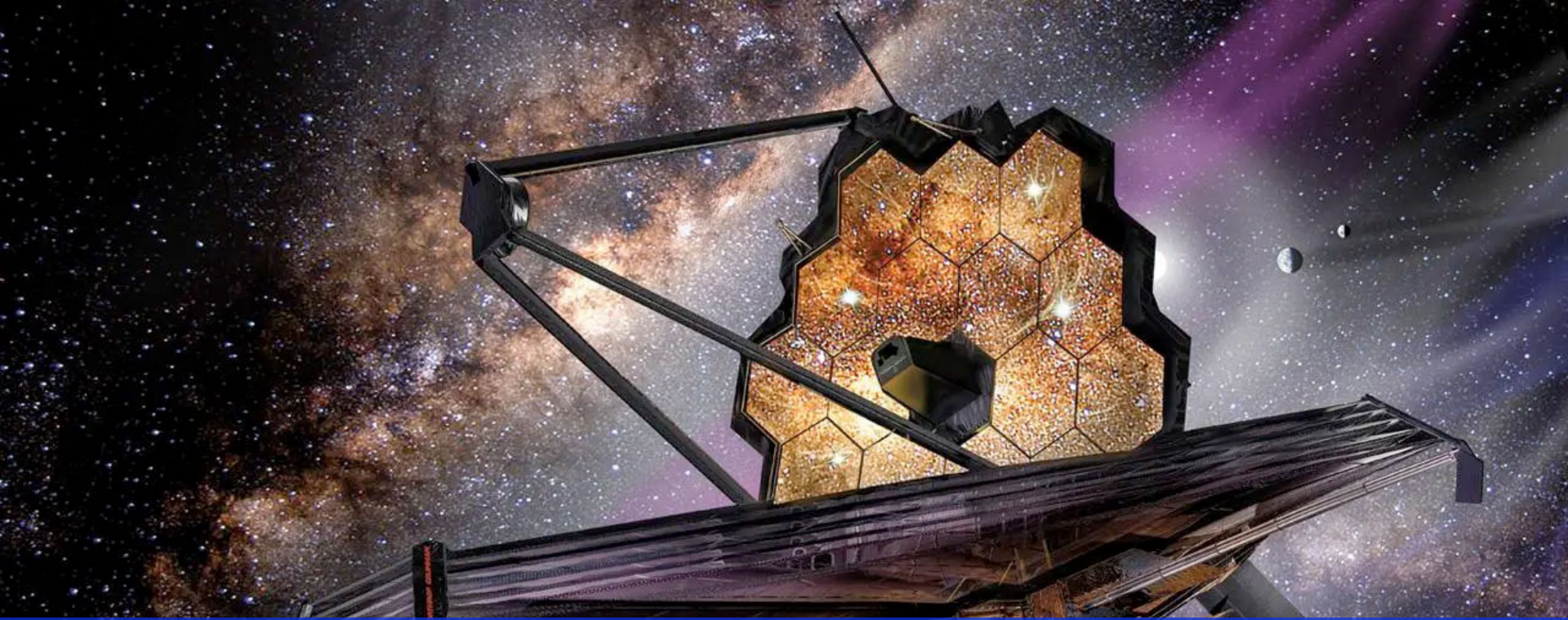
DESIGN MAKE PLAY • New York Hall of Science

INSPIRING THE NEXT GENERATION

NYSCI's Early Childhood Space Science Initiative



The U.S. space program in the 1960s lit up the imaginations of a generation of future scientists and engineers, fostering a passion for innovation and a belief that anything is possible.



Space exploration continues to inspire and motivate.
It has the potential to foster a passion for innovation in today's youth.

NYSCI invites you to partner with us to build opportunities for our youngest learners engage in the wonders of space exploration.

A National Model for Early STEM Learning

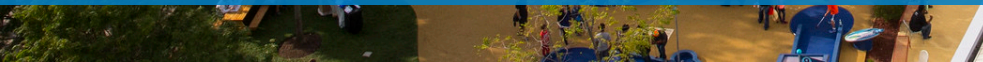
Through an unprecedented partnership with the City of New York, in September 2022 a STEM-themed Pre-K Center opened on NYSCI's campus in Corona, Queens. Science is an integral part of the curriculum, the teachers use the museum NYSCI as a routine part of the children's learning experiences, and every single family that attends the school gets a free family membership to NYSCI.

A Unique Opportunity

Hundreds of 3- and 4- year olds now look out their classroom windows and see NYSCI's magnificent Rocket Park. This is a unique opportunity to engage and inspire our littlest learners by building their understanding of space science through a suite of experiences, curricula, and programs that will inform early childhood learning across the nation.

A National Leader for STEM Learning

NYSCI is a national leader with a strong track-record of building on important science concepts in playful, compelling ways to invite people into STEM learning. Through exhibitions, programs, curriculum, and digital products accessed by millions around the world, along with cutting-edge research, NYSCI is a global leader in the field of STEM learning and engagement.



A Novel Approach to Space Exploration for our Youngest Learners

The New York Hall of Science

Located in Queens, America's most diverse county, NYSCI is committed to creating a world where diversity unlocks innovation, and where everyone is empowered to use science, technology, engineering, and math to tackle complex 21st century challenges.

It is a place where:

- Questions are important.
- Children are encouraged to explore, imagine and build things.
- It is safe to experiment and fail and try again.

Our mission is to nurture generations of passionate learners, critical thinkers, and active citizens through an approach we call *Design Make Play*.

Space Science and Early Childhood Learning

The preschool years are a period of boundless wonder and curiosity. The new Pre-K Center on NYSCI's campus and the artifacts and playspace of Rocket Park can support three overlapping strategies to engage young learners:

- Inviting wonder and Imagination.
- Supporting collaboration and shared problem solving
- Supporting emerging scientific reasoning and engineering practices.

Inviting Wonder and Imagination

Space exploration is foundational for children's imaginary play. Children can play at becoming astronauts, speeding through vast expanses of space, and discovering and exploring the unknown. These are all ways for young children to experience themselves as leaders, discoverers and storytellers — roles that can drive their scientific and engineering pursuits as they grow older.

Modelling Collaboration and Shared Problem Solving

Space science is the ultimate intersection of engineering and basic science — a field that requires contributions from many disciplines and perspectives. We can design contexts for shared problem solving that introduce young learners to the practices of shared inquiry that are fundamental to innovation and big science. For example, playground spaces and structures that require cooperation and collaboration to solve a problem can build foundational skills for the kinds of scientific inquiry at the heart of space science.

Supporting Children's Emerging Scientific Reasoning and Engineering Practices

With support, young learners can investigate phenomena that are fundamental to space science. Exploring the behavior of light and shadows, tracking the movement of the sun across the sky, and experiencing centripetal and centrifugal forces are examples of activities that are playful, accessible, and motivating for young learners and that will provide a strong basis for further exploration of outer space and space exploration over time.

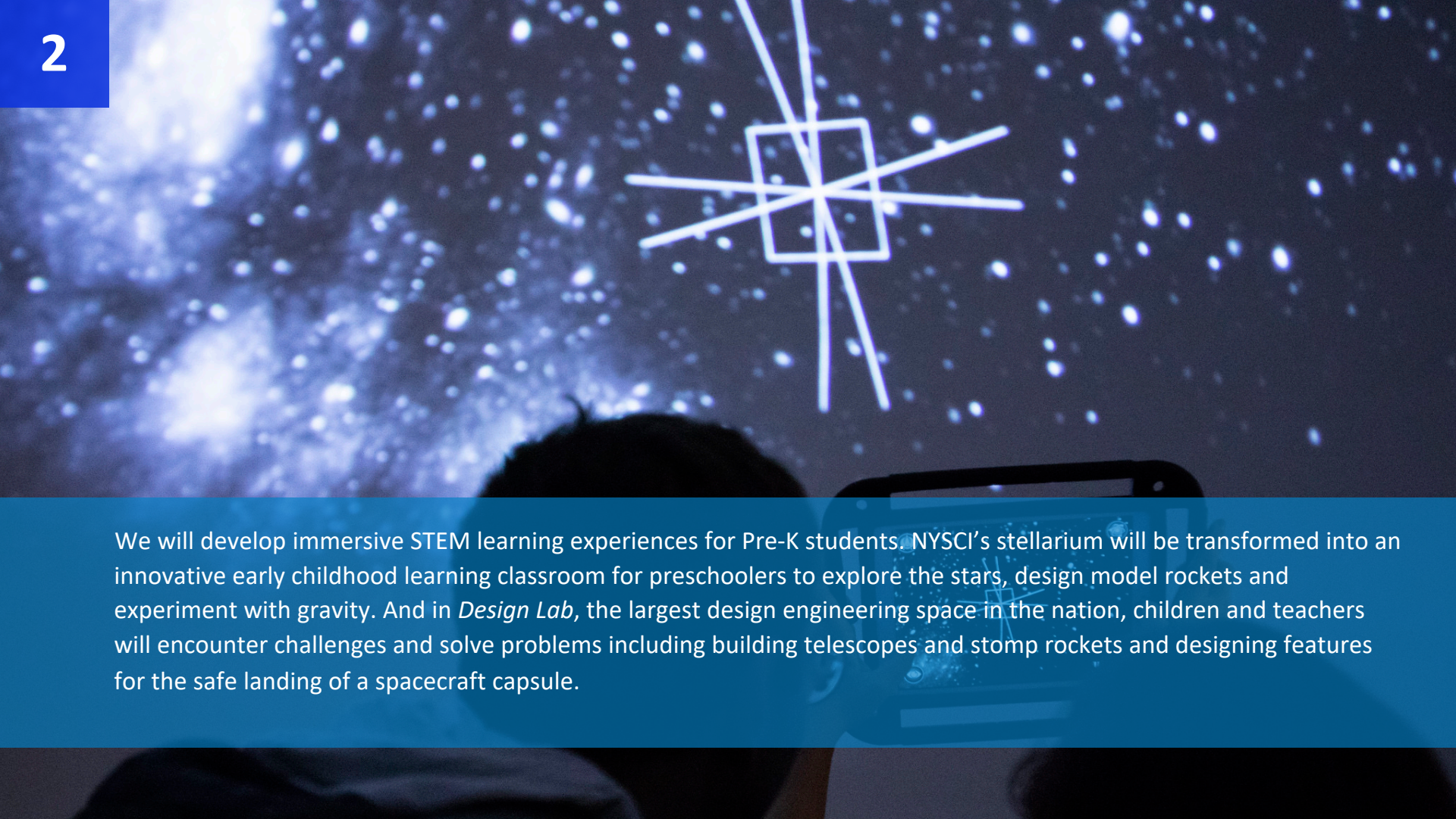
This initiative will Support Early Childhood Space Science for Early Learners in New York City and Across the Nation

CORE COMPONENTS

1

NYSCI displays authentic Mercury-Atlas D and Gemili-Titan II rockets and a Saturn V F-1 engine, donated by NASA and the U.S. Department of Defense. By preserving the rockets and modernizing the exhibition with new space artifacts—including modern spacecraft—as well as new experiences and opportunities to problem solve like space scientists, we will create contemporary and relevant experiences to inspire our youngest future explorers.

2

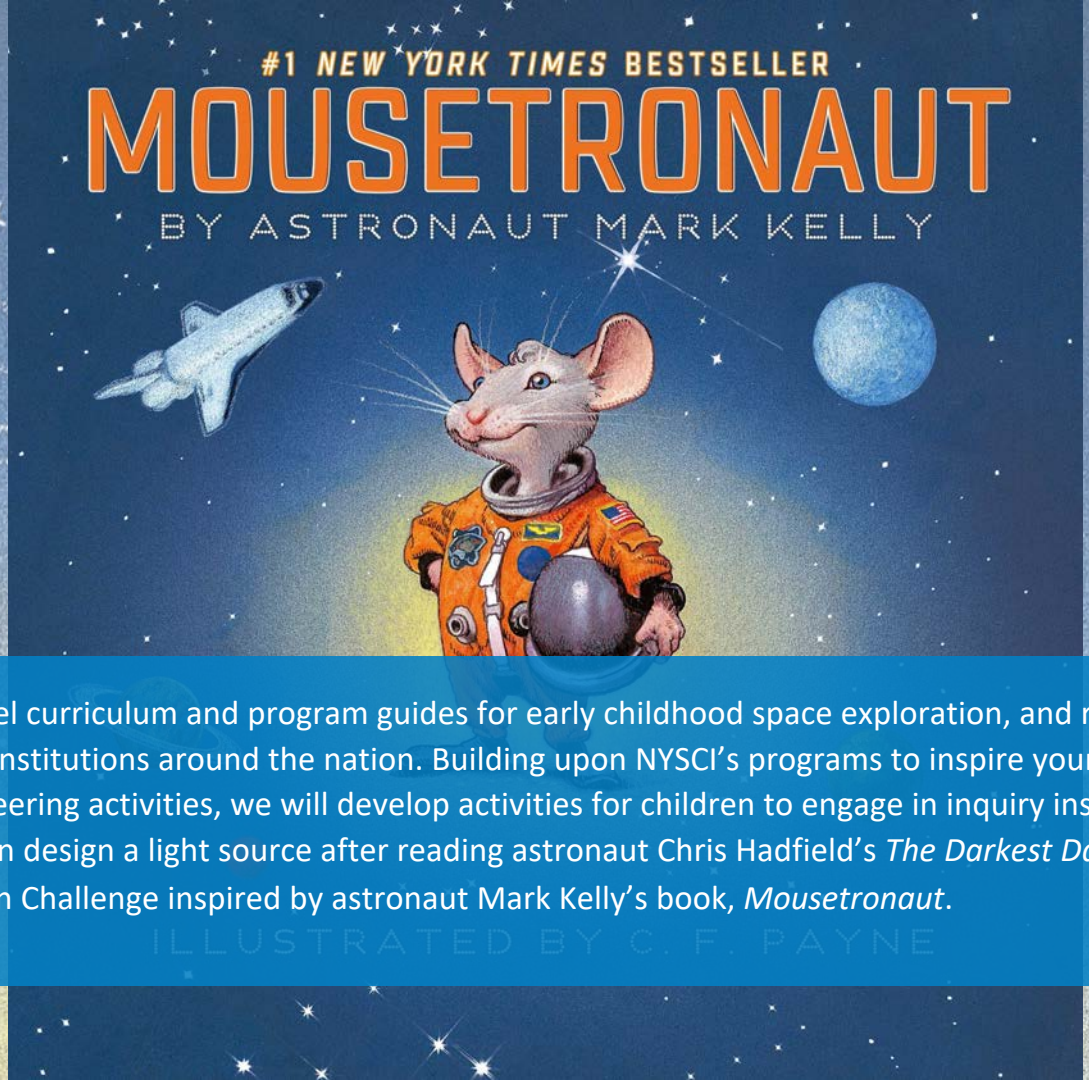


We will develop immersive STEM learning experiences for Pre-K students. NYSCI's stellarium will be transformed into an innovative early childhood learning classroom for preschoolers to explore the stars, design model rockets and experiment with gravity. And in *Design Lab*, the largest design engineering space in the nation, children and teachers will encounter challenges and solve problems including building telescopes and stomp rockets and designing features for the safe landing of a spacecraft capsule.

3

We will provide support services and standards-aligned STEM resources for early learning educators. These professional development resources and workshops can be delivered at scale to teachers nationwide.

4



We will develop novel curriculum and program guides for early childhood space exploration, and resources to implement these at institutions around the nation. Building upon NYSCI's programs to inspire young innovators through literacy-based engineering activities, we will develop activities for children to engage in inquiry inspired by books. For example, children can design a light source after reading astronaut Chris Hadfield's *The Darkest Dark,* or a Mousetronaut Design Challenge inspired by astronaut Mark Kelly's book, *Mousetronaut*.

5

We will develop innovative out-of-school programs in the science and engineering of space exploration for local Pre-K students and their parents, helping families make connections between in-school learning and family programming. This includes building on an existing collaboration with NASA to develop activities inclusive of neurodiverse learners.

Advisory Committee

Ellen Baker, M.D., M.P.H., NASA Astronaut, Cancer researcher, NYSCI Trustee

Rita Karl, Managing Senior Director, STEM Media & Education; Executive Producer, SciGirls, Twin Cities Public Television

Barbara Morgan, Teacher, NASA Astronaut

Jacqueline Jones, Ph.D., President and CEO, Foundation for Child Development, Former Deputy Assistant Secretary for Policy and Early Learning in the U.S. Department of Education

Thank you for your interest in this initiative!

For further information please contact:

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