



# Inspiring STEM Interest

February 2, 2021



## DISCLAIMER

*Any content or opinions expressed in this webinar are not that of the U.S. Department of Education nor an endorsement of any persons, products, programs, or policies mentioned herein.*



# Take Note

- March 25, 2:00 – 3:30 PM ET  
[Differing Abilities in STEM](#)
- STEM Webpage  
[www.ed.gov/STEM](http://www.ed.gov/STEM)
- STEM Newsletter  
[www.ed.gov/subscriptions](http://www.ed.gov/subscriptions)
- ED Grants  
<https://www2.ed.gov/fund/grants-apply.html>

The screenshot shows the U.S. Department of Education website. At the top left is the logo with the letters 'Ed' and a graduation cap. To the right of the logo is the text 'U.S. Department of Education'. Below this is a blue navigation bar with three tabs: 'Student Loans', 'Grants', and 'Laws'. In the top right corner, there is a search box labeled 'Search...'. The main content area is titled 'Science, Technology, Engineering, and Math, including Computer Science'. Below the title is a 'Table of Contents' section with a list of blue hyperlinks: 'Background', 'America's Strategy for STEM Education', 'Secretary's STEM Priority', 'Department Offices that Support STEM', 'ED Delivers Historic Investment in STEM', 'Open ED Funding and Other Opportunities', 'Examples of the Department's discretionary grants that can support STEM', 'Grant Applicant Resources', 'Call for Peer Reviewers', 'U.S. Department of Education STEM Newsletter', 'Archived STEM Newsletters', 'STEM Education Briefings', 'Archived Briefings', 'Upcoming STEM Briefings', 'Second Annual Presidential Cybersecurity Education Award', 'CTE CubeSat Finalists Announced', 'Rural Tech Project Finalists Announced', 'Resources', 'Other communications tools', 'Other Federal Agency STEM websites', and 'Department STEM Contacts'.



## Miriam Lund

Group Lead, Nita M. Lowey 21<sup>st</sup>  
CCLC Grant Program, The Out of  
School Time Career Pathways Grant  
Program, Office of Formula Grants,  
Office of School Support and  
Accountability, U.S. Department of  
Education



# Nita M. Lowey 21<sup>st</sup> Century Community Learning Centers Grant Program's STEM Investments





# 21<sup>st</sup> CCLC – Title IV, Part B

## Science, Technology, Engineering, and Mathematics Investments

- Interagency Agreements with the following:
  - NASA
  - NOAA
  - NPS
  - IMLS
- Agreements are in place for 3 years
- Total support of STEM for 21<sup>st</sup> CCLC through IAA is \$10.7M





Audience	Total - Direct	Total - Indirect
Students	467	700
21 <sup>st</sup> CCLC staff	125	10
Educators/Administrators	91	153
NOAA Scientists	14	9
Local Media, Social Media	48,852	426,017
Other	3,771	230
<b>TOTAL</b>	<b>53,320</b>	<b>427,263</b>
<b>TOTAL (excluding media)</b>	<b>4,468</b>	<b>1,246</b>





# NASA STEM Design Challenge

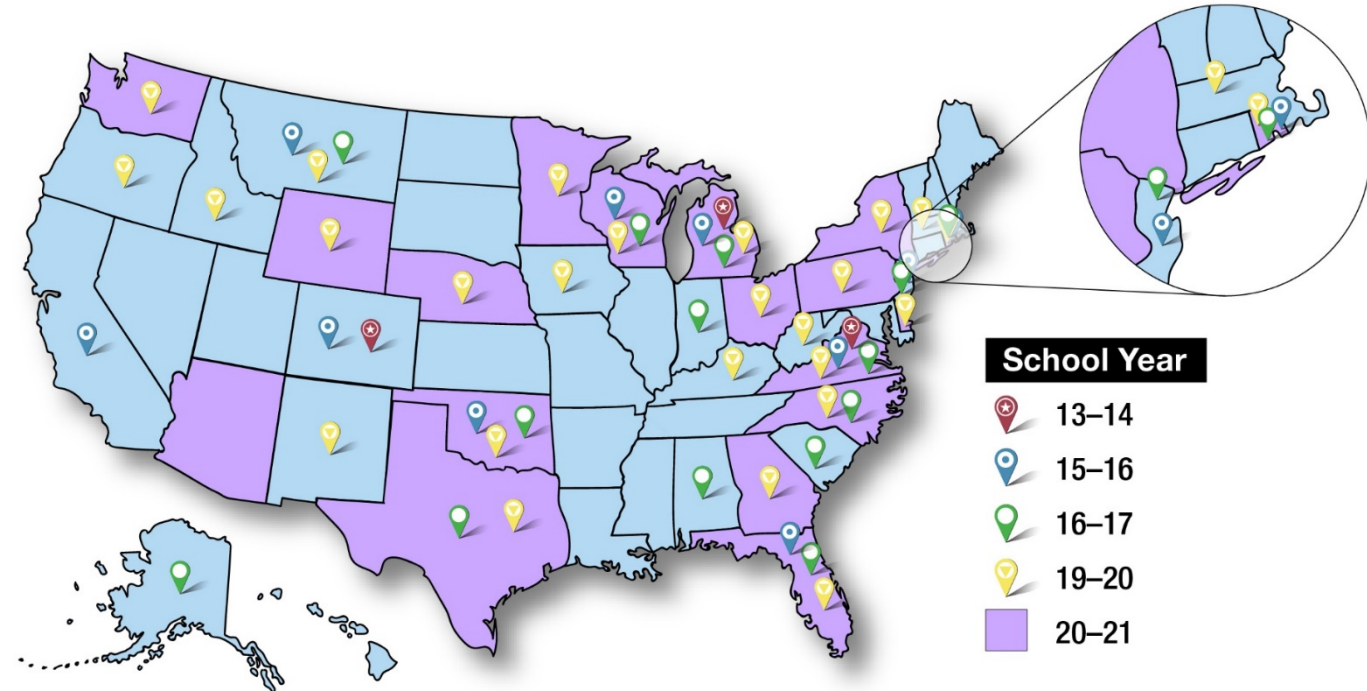
<b>What</b>	A partnership between NASA and the US Department of Education's 21st Century Community Learning Centers
<b>Who</b>	Sites execute a series of engineering design challenges in 3 <sup>rd</sup> – 8 <sup>th</sup> grades, enabling them to develop solutions to real world science and engineering problems faced by NASA scientists, engineers and astronauts today
<b>Where</b>	The collaboration will support an expansion of STEM opportunities for students across the country in up to 18 states
<b>When</b>	<u>2020-2021</u> School Year





# NASA 2020-2021 Reach

# of states	Participating States
1	Arizona*
2	Delaware*
3	Florida
4	Georgia*
5	Michigan
6	Minnesota
7	Nebraska
8	New York
9	North Carolina
10	Oklahoma
11	Ohio
12	Pennsylvania
13	Rhode Island
14	Texas
15	Virginia
16	Washington
17	Wisconsin
18	Wyoming



\*New States in 2020-2021



Museum	# of Museum Partners at NYSCI	# of CCLC Sites Assigned	# of CCLC Educators Trained	# of Students
Franklin (PA)	4	5	11	135
NYSCI (NY)	2	5	19	99
Amazeum (AR)	2	5	25	184
Betty Brinn (WI)	3	4	12	113
ScienceWorks (OR)	2	5	8	48
ASC (AZ)	2	5	14	68
Houston (TX)	2	5	28	75
Frost (FL)	2	4	11	138
<b>Total</b>	<b>19</b>	<b>38</b>	<b>128</b>	<b>860</b>



- Summer Symposium Workshops/Trainings 7
  - Craters, Great Smoky, Saguaro completed PD
- 21<sup>st</sup> CCLC Engagement with Partners 8
  - Most NPS pushed back activities due to COVID-19
  - Saguaro NP students set up wildlife camera around their school
  - Grounds and the NP staff set up cameras in the NP; discussions on difference
  - Olympic NP found social distancing precluded students from riding buses to the park so in the spring, field trips that include parents will happen, parents will be reimbursed for their gas
  - Craters of the Moon NP reduced the number of students and chaperones but added virtual visits for those who couldn't attend in person
  - Great Smoky Mountains NP didn't change the activities but reduced the number of students per visit and added virtual sessions. The site will continue in person visits in school year 20-21.



Learning has no boundaries!



Thank you!

Visit: [Y4Y.ed.gov](http://Y4Y.ed.gov)



## **Dr. Sylvia James**

Deputy Assistant Director,  
Education and Human Resources  
Directorate, National Science  
Foundation



# **Dr. Heidi Schweingruber**

Director for Board on Science  
Education, National Academies of  
Science, Engineering and Medicine



## **Dennis Schatz**

Science Educator, Connected  
Science Learning

Retiring President, National Science  
Teaching Association

Senior Fellow, Institute for Learning  
Innovation





## **Dr. Adam Maltese**

Professor, Martha Lea and Bill  
Armstrong Chair for Teacher  
Education, Indiana University



What type of experience first sparked your interest in STEM?	Male	Female
Playing or spending time outdoors	10%	15%
Class at school	8%	13%
No specific event - I remember ALWAYS being intrinsically interested	13%	12%
Math problems/logic games/patterns	8%	12%
Good grades in STEM courses	7%	9%
Home experiments/investigations (with microscope, chemistry kit, etc.)	11%	7%
Books, magazines, and/or comics	9%	5%
Visit to a museum, zoo, aquarium or nature reserve/park	3%	3%
Television show or movie	4%	2%
Building / Tinkering / Taking apart mechanical objects or electronics	9%	2%
<i>Total Responses</i>	<i>3817</i>	<i>2969</i>

Source: Adam Maltese, Ph.D., University of Indiana

# STEM Interest by Gender and Grade

Career Interest	SEX/GRADE	3	4	5	6	7	8	9	10	11	12
Science & Engineering	Boy	15%	14%	17%	16%	18%	25%	17%	20%	23%	18%
	Girl	4%	4%	3%	4%	4%	6%	5%	4%	4%	9%
Medicine & Veterinary	Boy	5%	5%	7%	4%	7%	5%	8%	8%	6%	10%
	Girl	29%	34%	31%	28%	29%	34%	34%	39%	45%	43%

Source: Adam Maltese, Ph.D., University of Indiana

Which of the following were the most important factors in your persistence in STEM beyond the event that initially interested you?	Grades 1-4	Grades 5-8	Grades 9-12	Age 18+
Playing or spending time outdoors	15%	7%	4%	1%
Books, magazines, or comics	12%	9%	5%	2%
Innate interest/passion for the field	12%	10%	12%	20%
Building / Tinkering / Taking apart mechanical objects or electronics	12%	9%	4%	1%
Math problems/logic games/puzzles	10%	10%	5%	2%
Home experiments/investigations (with microscope, chemistry kit, etc.)	9%	9%	3%	0%
Visits to museum, zoo, aquarium or nature reserve/park	6%	5%	2%	1%
Good grades in STEM courses	5%	13%	20%	8%
Television show or movie	3%	2%	1%	0%
Expectations of Others (e.g., family, peers)	3%	3%	3%	2%
STEM classes at school	3%	7%	18%	14%
I was not interested at this point	2%	2%	2%	3%
Computer programming/building	1%	4%	5%	5%
Research Experience	0%	0%	2%	23%
<i>Total</i>	<i>2753</i>	<i>4061</i>	<i>4776</i>	<i>5129</i>

Source: Adam Maltese, Ph.D., University of Indiana

# Timing of STEM Interest by Experience Type

*Timing of Initial Interest by Type of Experience (in percentages)*

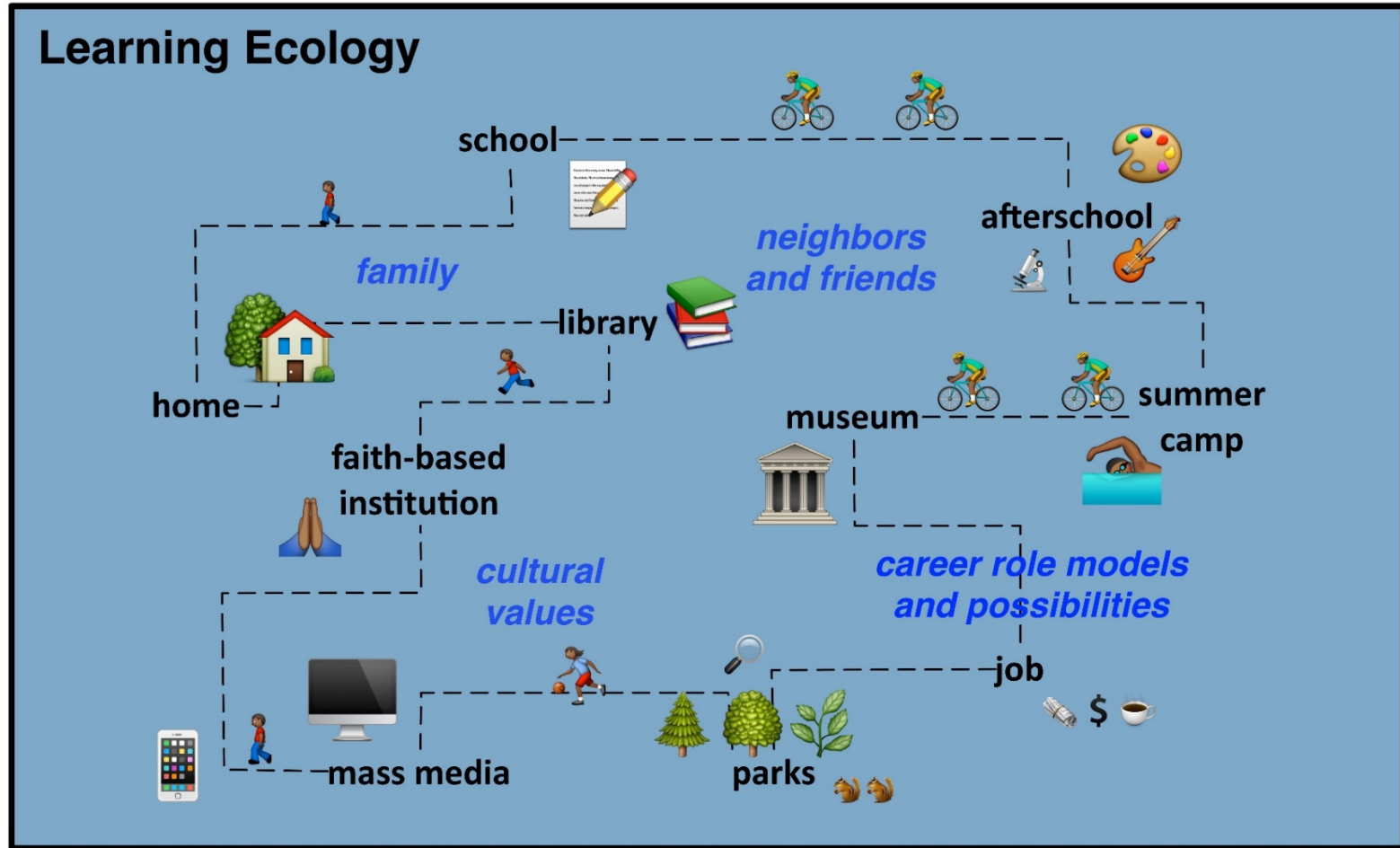
What type of experience first sparked your interest in STEM?	Pre-K		Grades K–5		Grades 6–8		Grades 9–12		College	
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
No specific event; innate interest	29	35*	19	22	11	12	10*	7	10	5
Building, tinkering, or taking apart mechanical objects or electronics	22**	4	19**	4	18**	3	12**	2	9**	3
Media (books, television, or video games)	17*	12	16**	11	14**	8	13**	8	18**	9
Playing or spending time outdoors	9	21**	7	9	3	6**	3	3	3	4
A visit to a museum, zoo, aquarium, or nature reserve	5	7	5	8**	3	5	3	5	3	2
Interest in math problems or logic games	4	5	7	10*	9	10	11	8	3	8*
Class at school	1	1	12	21**	29	41**	33	52**	37	49*
Science fair	0	0	2	3*	2	3	2	3	2	1
All other categories	12	14	12	12	11	12	12	13	16	19
Subsample <i>n</i>	474	407	1,165	1,115	542	534	565	577	188	232


Source: Adam Maltese, Ph.D., University of Indiana



Promoting excellence and innovation in science teaching and learning for all





 Research+Practice Collaboratory. 2015.

Center to Advance Informal STEM Education (CAISE) [video interview series](#)



LINKING IN-SCHOOL AND OUT-OF-SCHOOL STEM LEARNING.

A publication of NSTA and ASTC



EDITORIAL

FEATURED

RESEARCH TO PRACTICE, PRACTICE TO RESEARCH

DIVERSITY AND EQUITY

EMERGING CONNECTIONS

BRIEFS



Issue 1

Research to Practice, Practice to Research

# STEM Learning Ecologies

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Dimensions

ASTC's award-

<https://nsta.org/csl/>



# NASEM Reports

Download reports for free: [www.nap.edu](http://www.nap.edu)

- Cultivating Interest and Competencies in Computing (2021)
- Teaching K-12 Science and Engineering During a Crisis (2020)
- Science and Engineering for Grades 6-12 (2018)
- Learning Through Citizen Science (2018)
- Barriers and Opportunities to 2 and 4 year STEM degrees (2016)
- Identifying and Supporting Productive STEM Programs in Out-of-school Settings (2015)
- STEM Integration in K-12 Education (2014)
- A Framework for K-12 Science Education (2012)
- Surrounded by Science: Learning Science in Informal Environments (2010)
- Learning Science in Informal Environments: People, Places & Pursuits (2009)

# Inspired by a Boa



# Reminders

[www.ed.gov/STEM](http://www.ed.gov/STEM)