TOMORROW STEMS FROM IOWA

GOVERNOR'S STEM ADVISORY COUNCIL

IOWA GOVERNOR'S STEM ADVISORY COUNCIL MEETING

TOMORROW STEMS FROM IOWA

GOVERNOR'S STEM ADVISORY COUNCIL

Roger Hargens

Accumold CEO and President

TOMORROW STEMS FROM IOWA

GOVERNOR'S STEM ADVISORY COUNCIL

Governor Kim Reynolds

STEM Council Co-Chair

TOMORROW STEMS FROM IOWA
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Diane Young

Foundation Analytical Laboratory Owner and Director of Technical Services and STEM Council Co-Chair

TOMORROW STEMS FROM IOWA
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Window into STEM- Okoboji No Boundaries STEM BEST

Tanya Hunt, STEM Council Project Coordinator

No Boundaries

MIDDLE SCHOOL

No Boundaries Middle School 2022-23

A Day in the Life Video

How Is No Boundaries Different?

- Passion-Based Learning
- Real World Experiences
- Student-Centered Program
- Working on "Future Ready" Skills
- Connecting the Community to the Curriculum

How Are Projects Selected?

Who Have We Worked With This Year?

FEH DESIGN
ARCHITECTURE / ENGINEERING / INTERIORS

SAFCO

OKOBOJI

ARNOLDS PARK
AMUSEMENT PARK
Lake Okoboji

NORTHWEST BANK
Commitment you can bank on.

SPENCER CHAMBER

blink 26
MARKETING

Healthy LifeStars

SHIP'S STORE
AT MAU MARINE

BONFIRE
MARKETING & WEB Co

OKOBOJI
COMMUNITY SCHOOL FOUNDATION

Mau MARINE
EXPERIENCE THE DIFFERENCE

Lakes Regional Healthcare
An Avera Partner

Practice Projects

Show me the $$$

-Juli Johnson-

-Abby Walleck-

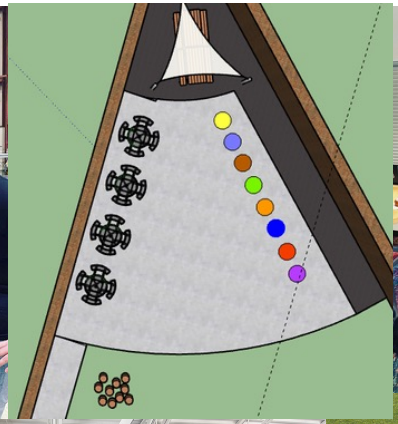
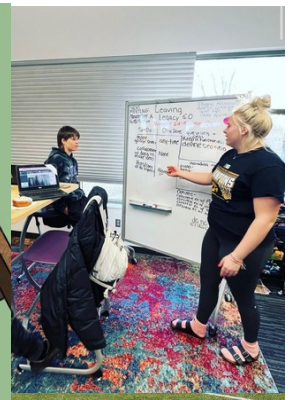
Arnold's Park

-Jon Pausley-

Leaving a Legacy 5.0

Partners: Tyler Riley - FEH Design Vice President &
Todd Abrahamson - OCSD Superintendent

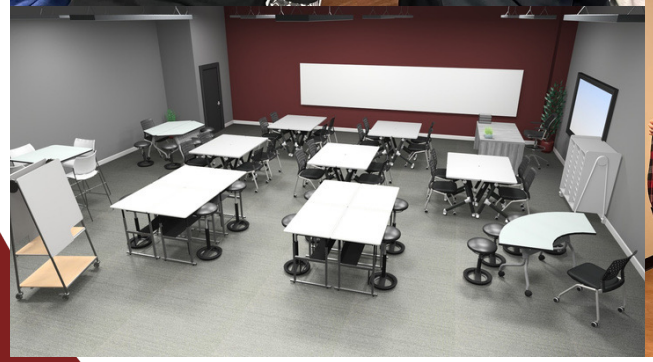





Generation Z 4.0

Partners: Elizabeth Jones-Human Resources Manager , Susan Shockey-Space Design Specialist, and Tracy Mevissen-Technical Specialist of SAFCO

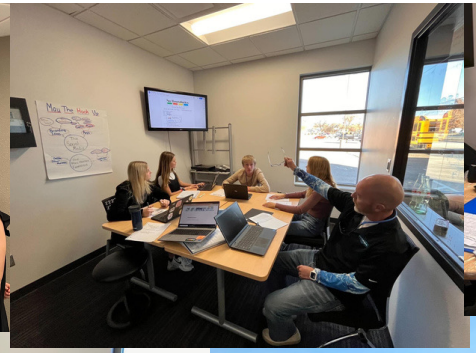


Who Let the Dogs Out?!

Partner: Katie Coyle, Special Education Teacher at Okoboji Middle School

The Hook

Partner: John McMahon, Manager of Ship Store at Mau Marine



Healthy Alternatives

Partners: Katy Burke, Director of Public Health &

Josie Henzen, Healthy Lifestars

Our Growth & Challenges

Collaboration

Self-Directed Learning

Presenting/ Speaking

Complex Communication

Productivity Accountability

Project Management

Flexibility

Time Management

Ella Kasperbauer - Collaboration



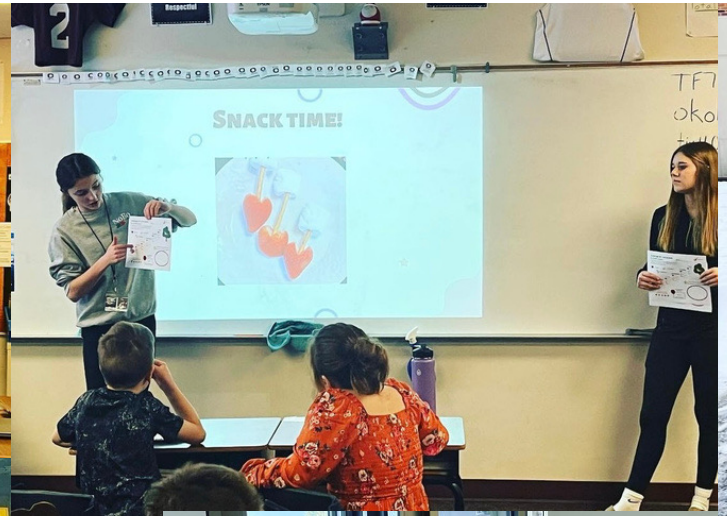




Elliana Antoine - Flexibility

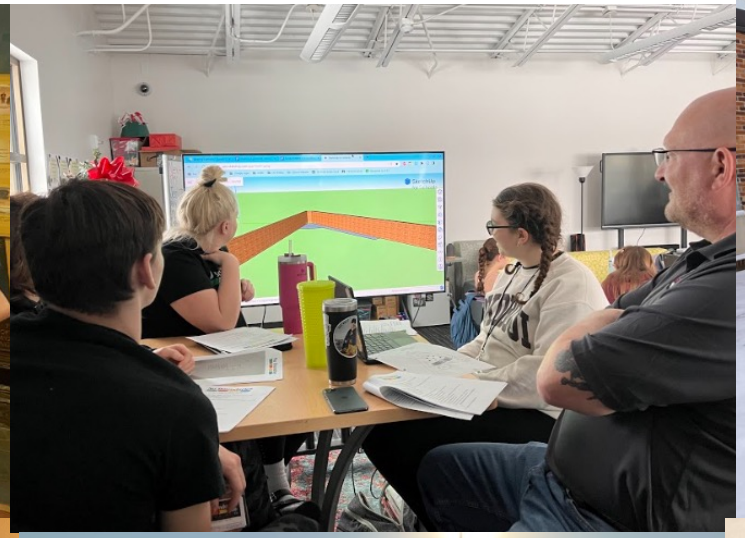
Kylan Loken - Communication

Riley Meyer - Growth Mindset



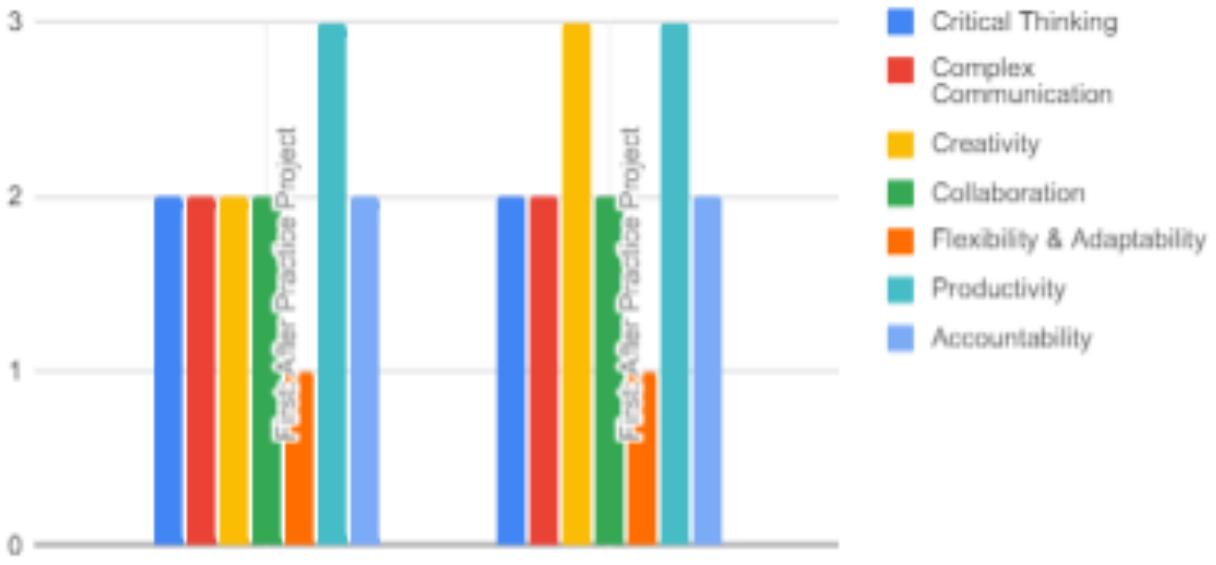
Bella Sandbulte-Managment

Karna Droegmiller- Professionalism



	Executing				Relationship Building				Strategic Thinking				Influencing				Talent Development	
Leadership Descriptions	Leaders know how to make things happen. When you need someone to implement a solution, these are the people who will work tirelessly to get it done. Leaders with a strength to execute have the ability to "catch" an idea and make it a reality.				Essential glue that holds a team together. Without these strengths on a team, in many cases, the group is simply a composite of individuals. In contrast, leaders with exceptional relationship building strength have the unique ability to create groups and organizations that are much greater than the sum of their parts.				Keep team focused on what could be. They are constantly absorbing and analyzing information and helping the team make better decisions. People with strength in this domain continually stretch our thinking for the future.				hose with strengths in this domain are always selling the team's ideas inside and outside of the organization. When you need someone to take charge, speak up, and make sure your group is heard, look to someone with the strength to influence.				Individuals who identify the skills and mindsets to suceed in an innovation driven economyand have an interest in pursuing problem solving as a career	
Skills & Mindsets	**Grit** Determination, Resilience, Tenacity	**Motivation** Ambition, Inquisition, Drive	**Responsibility** Accountability, Maturity, Trustworthy	**Execute** Accomplish, Perform, Doer	**Adaptable** Versatile, Flexible, Adjustable	**Empathy** Compassion, Warmth, Insight	**Facilitator** Helper, Grower	**Collaborator** Teamwork, Harmony, Relator	**Investigator** Examiner, Analyst, Detective	**Creative Thinker** Imaginative, Inventive, Visionary	**Learner** Improver, Scholar	**Critical Thinking** Strategic, Calculated, Tactical	**Leader** Commander, Director, Guide	**Communicator** Connector, Correspondent	**Confidence** Self-Assurance, Courage	**Influencer** Impact, Woo, Impress	**Skills to Succeed in STEM**	**Career Interest in STEM**

Progress over Perfection



How we are successful

- Time Management
- Universal Calendar
- SLACK
- Trello
- Iteration cycle (brainstorming/ work days, partner meetings, retrospectives)

Time Management

Monday, April 10th	Tuesday, April 11th Handprints	Wednesday, April 12th Handprints	Thursday, April 13th Handprints	Friday, April 14th RILEY & ELLIANA GONE
No School! PD Day!	STEPATHON Who Let The Dogs Out meeting with Tanya @ 9:30 Call MP & MCS- Ella N &Collin; Kylan- Food STEM advisory PR members meeting 9am	STEPATHON Gen Z PM 9:15 #thehookmau photos 9:15 Date Finalized for EOYG	STEPATHON #legacy PM 9:00 am office PR Team Prep 9:45	STEPATHON Job Fair for 8th Grade 8:15-9:45 Healthy Alternatives Meeting @Nobooffice at 10:00

Iteration Cycle

15 Minute Retro Questions -

What Went Well?

What Didn't Go Well?

What Have You Learned?

What Still Puzzles You?

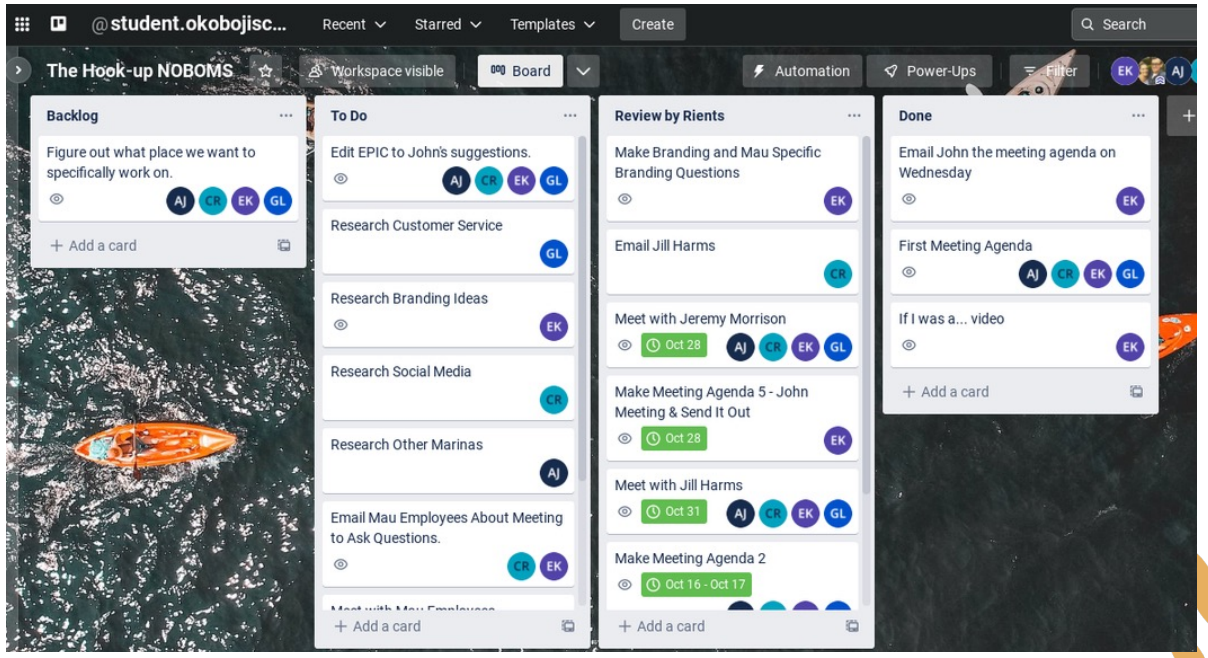
No Boundaries
MIDDLE SCHOOL

Leaving A Legacy 5.0 Meeting Agenda
Zoom Link:

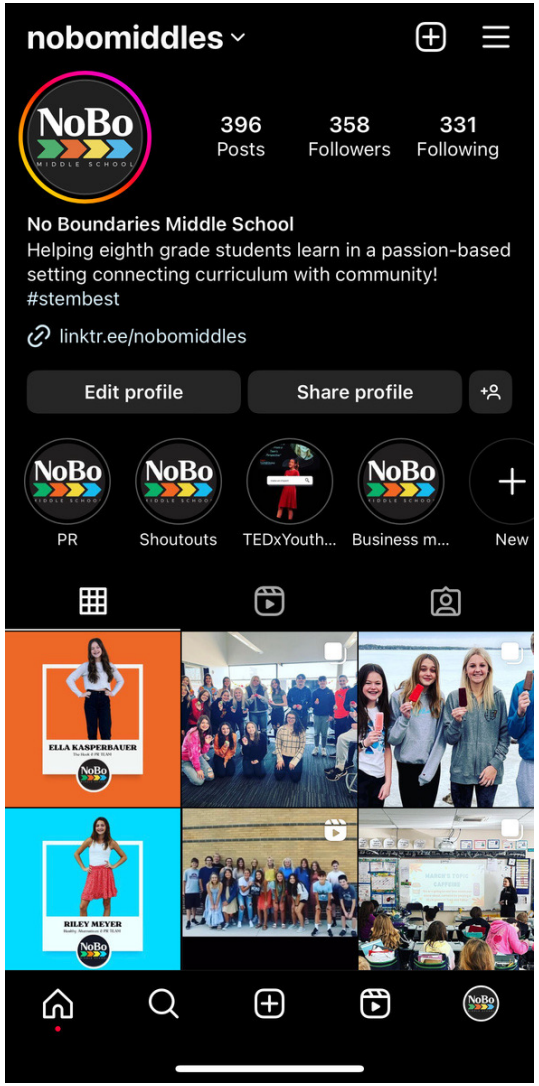
Date: Wednesday, Oct 26 Time: 9:15 AM Location: No Boundaries Space

Team Members to Attend:
Karna Droegmiller, Elliana Antoine, Cade Worrell, Tyler Pyle
Point of Contact: Elliana Antoine
Roles: Opener- Tyler Pyle
Note Taker- Karna Droegmiller
Tech Guru- Elliana Antoine
Closer- Cade Worrell

I. Accomplishments of project so far (Opener)
   A. Talked to the 7th & 8th grade science teachers (Mrs. Beisell & Mr. Allen) for opinions and ideas
   B. Brainstormed Seating Options
   C. Brainstormed Flooring Option
   D. Brainstormed fun, interactive ways to make the space used more
   E. Went through drone training to take pictures of the cement pad
II. Purpose of Meeting-- to get feedback and share research (Opener)
III. Points of Discussion (Deliverables)



Why We Love Authentic Learning?



Thank You!

Follow us on our socials!
@nobomiddles

TOMORROW STEMS FROM IOWA
GOVERNOR'S STEM ADVISORY COUNCIL

2022-23 Annual Assessment Findings

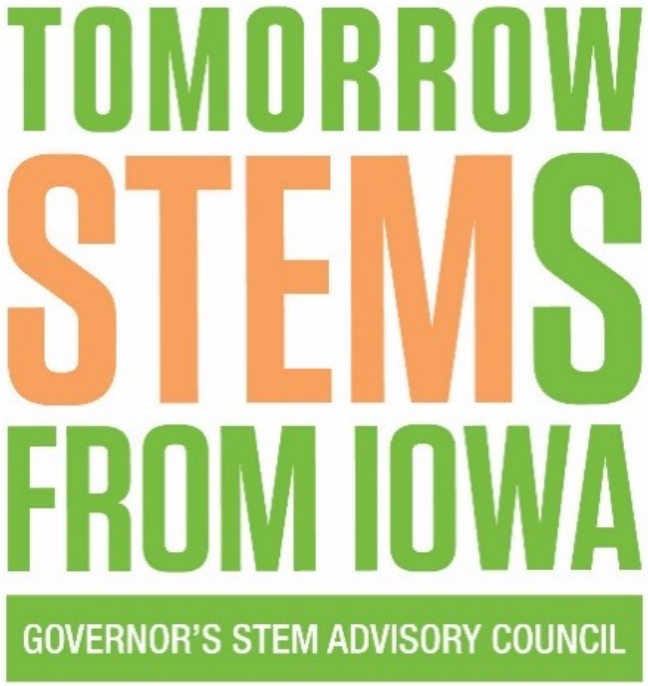
Dr. Erin Heiden, Assistant Director, University of Northern Iowa
Center for Social and Behavioral Research

University of Northern Iowa
Center for Social & Behavioral Research

Iowa State University
RISE
Research Institute for Studies in Education

The University of Iowa
Iowa Testing Programs

Iowa STEM Monitoring Project 2021-2022 Annual Report

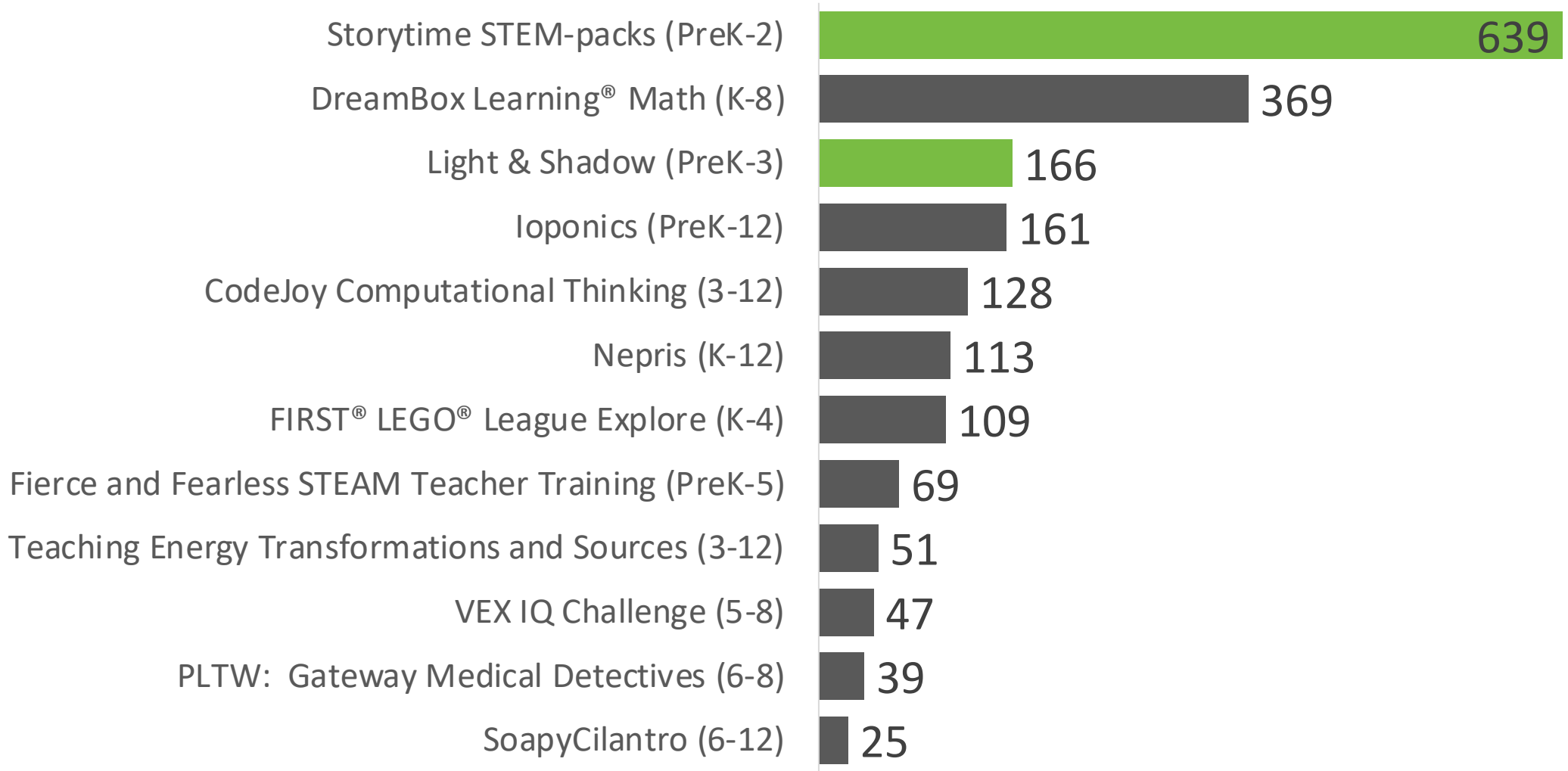


STEM Scale-Up Program

2021-2022

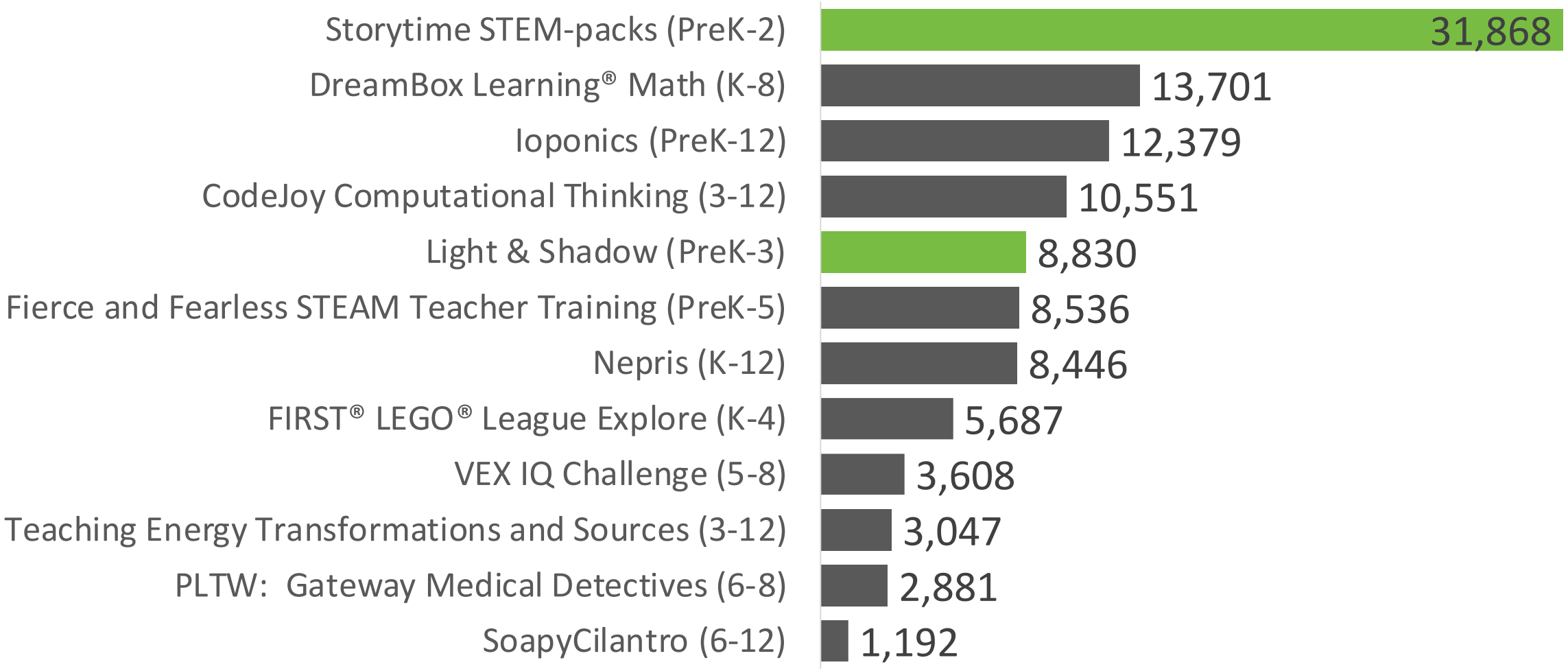
The 2021-2022 STEM Scale-Up Program: 1,916 awards

Most awards were programs for early elementary grades



Source: STEM Scale-Up Program Educator Survey, Iowa State University, Research Institute for Studies in Education, October 2022

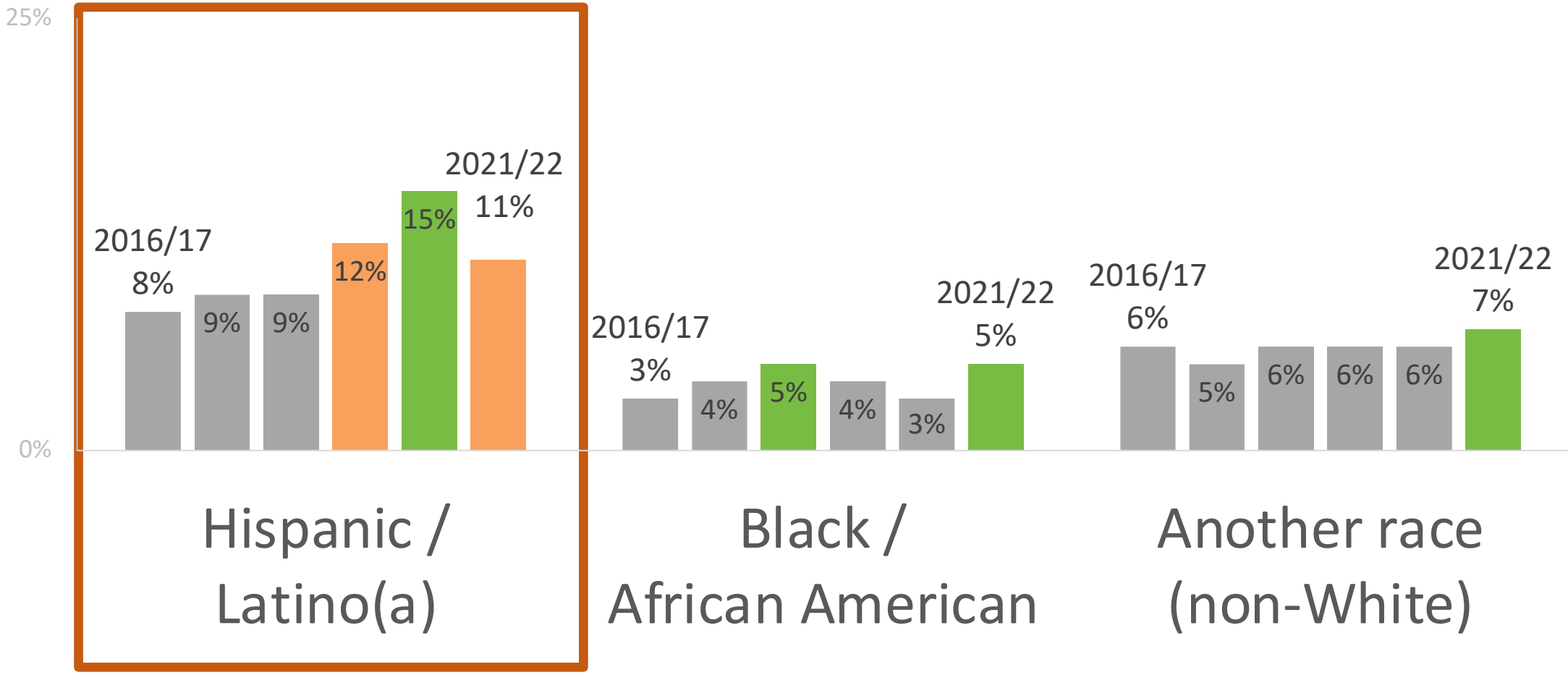
A projected **110,876** students participated in STEM Scale-Up Programs in 2021-2022



Source: STEM Scale-Up Program Educator Survey, Iowa State University, Research Institute for Studies in Education, October 2022

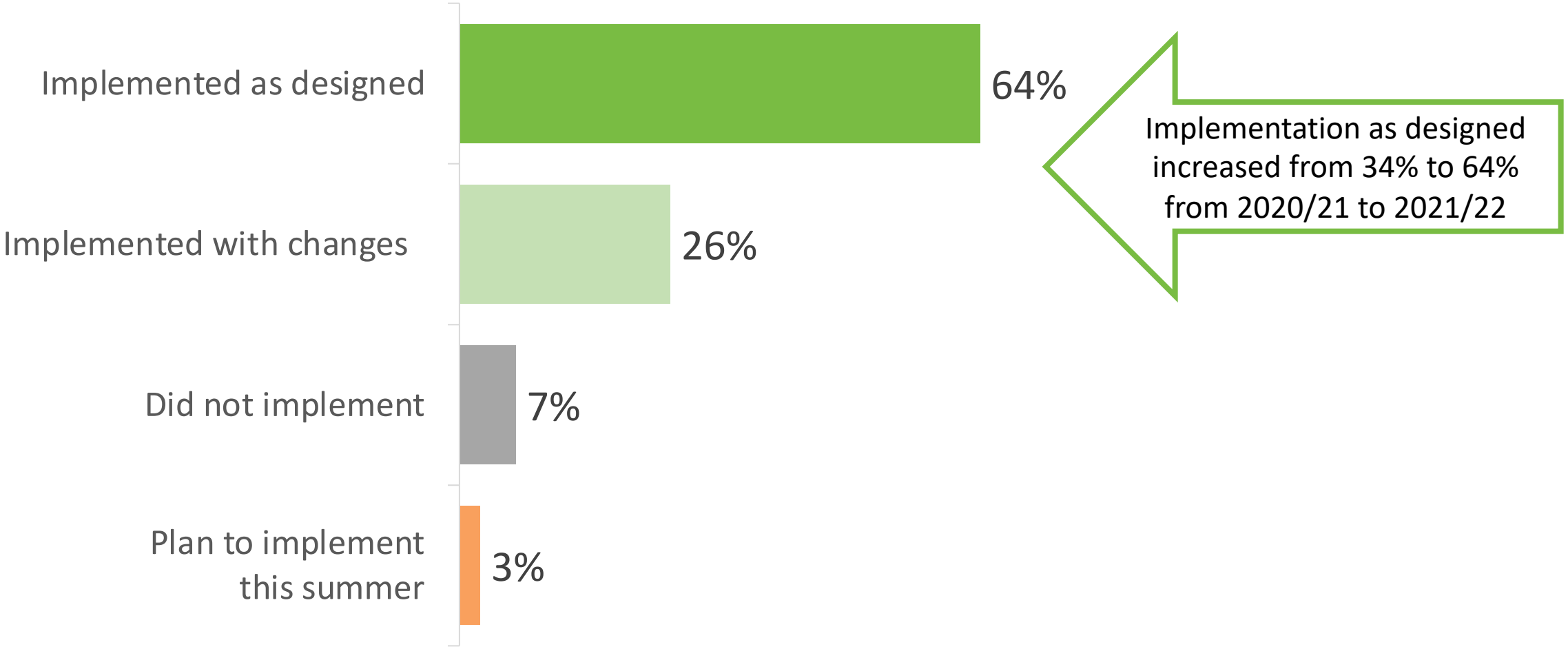
Broadening Participation…

In the last six years, the STEM Scale-Up Program has **increased participation among students who are Hispanic / Latino(a)** from 8% to 11%, with a high of 15% in 2020/21.

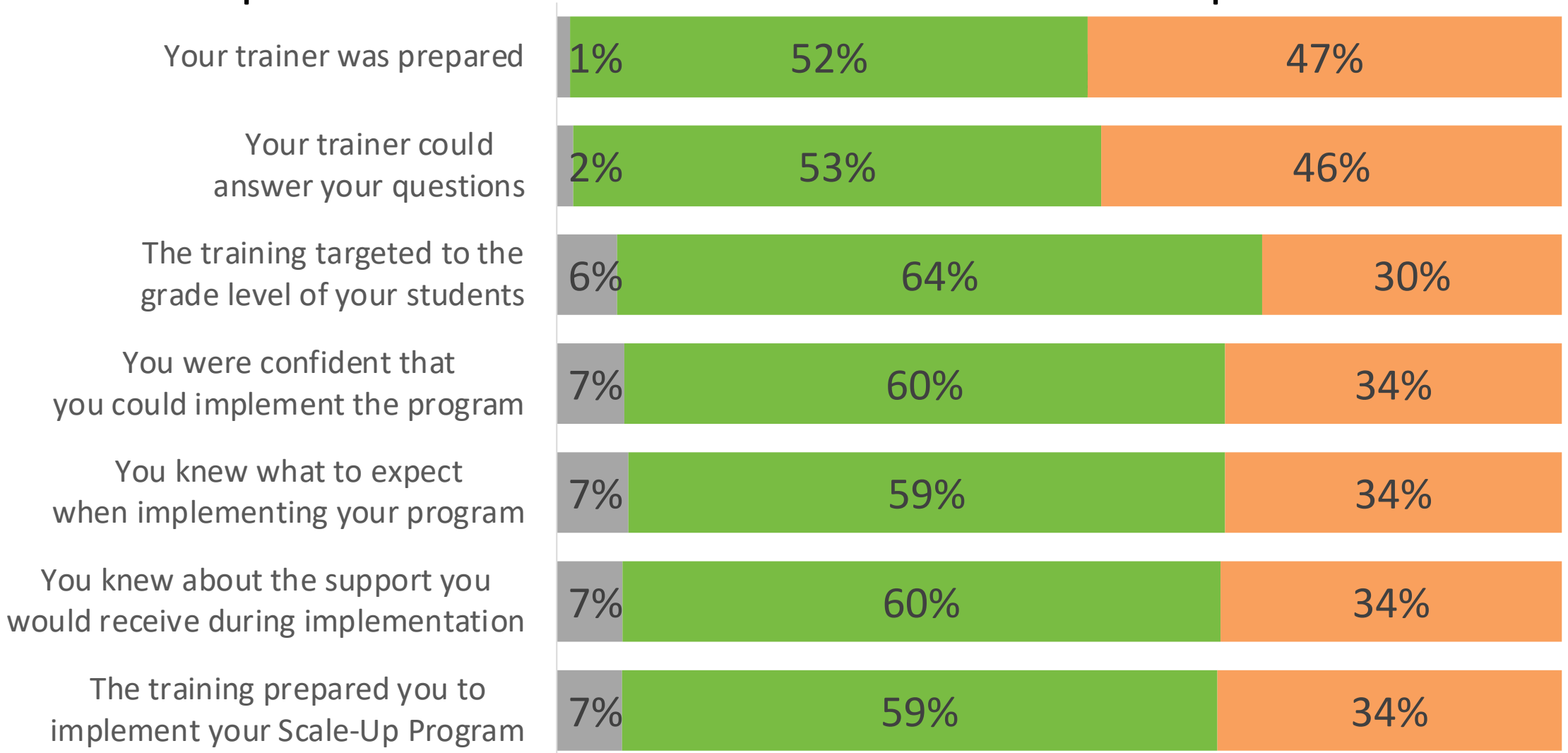


Most educators (90%) were able to implement in whole or in part in 2021-2022

In addition, nearly all (91%) planned to use the program again in 2022-2023.



9 in 10 educators reported that the professional development met or exceeded their expectations

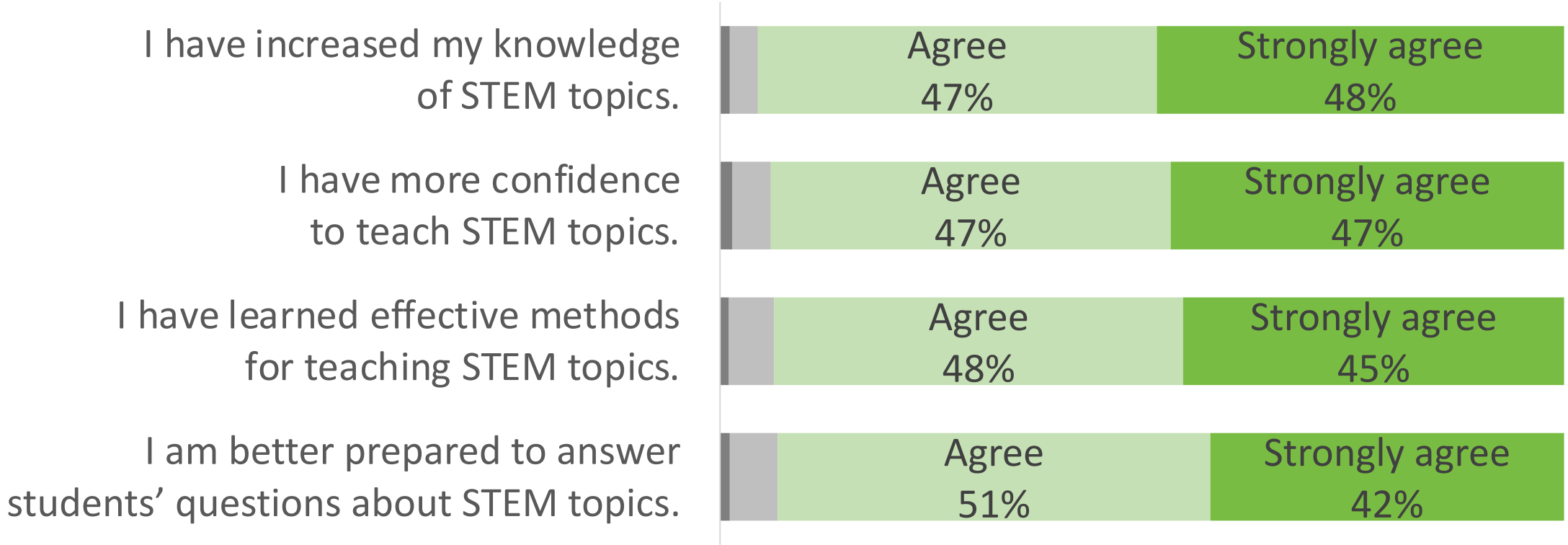


Source: STEM Scale-Up Program Educator Survey, Iowa State University, Research Institute for Studies in Education, 2022

Educator Perceptions of STEM Scale-Up Program

9 in 10 educators agree they …

Have increased knowledge of STEM topics (96%),
Have more confidence to teach STEM topics (94%),
Have learned effective methods for teaching STEM topics (94%),
Are better prepared to answer students' STEM-related questions (93%).



Educator views: Impacts on STEM Education

- Increased interest and excitement in STEM
- Provided practical, hands-on learning experience
- Created opportunities for applying critical thinking skills, problem-solving skills, and scientific thinking
- Supplemented existing curriculum and provided pedagogical enrichment

Educator views: Impacts on STEM Education

*I became **much more confident in my ability to teach computer science** at my schools. I also **saw the excitement for STEM grow** as well as interest in this area.*

Educator views:
Student Learning and Engagement

Our students loved working with the microbits. Students were engaged learning to code sensors, sound, and movement. They were ***very creative*** *with their final projects. The CodeJoy lessons were great places for us to begin. This program is a* ***great example of teacher led-learning****. This Scale-Up program also allowed all of our seventh graders to participate and* ***grow in their problem-solving skills****. The bonus was that they had fun doing it. Thank you!*

Educator views: Enhancing Teachers' Skills and Classroom Curriculum

Improved classroom curriculum/materials

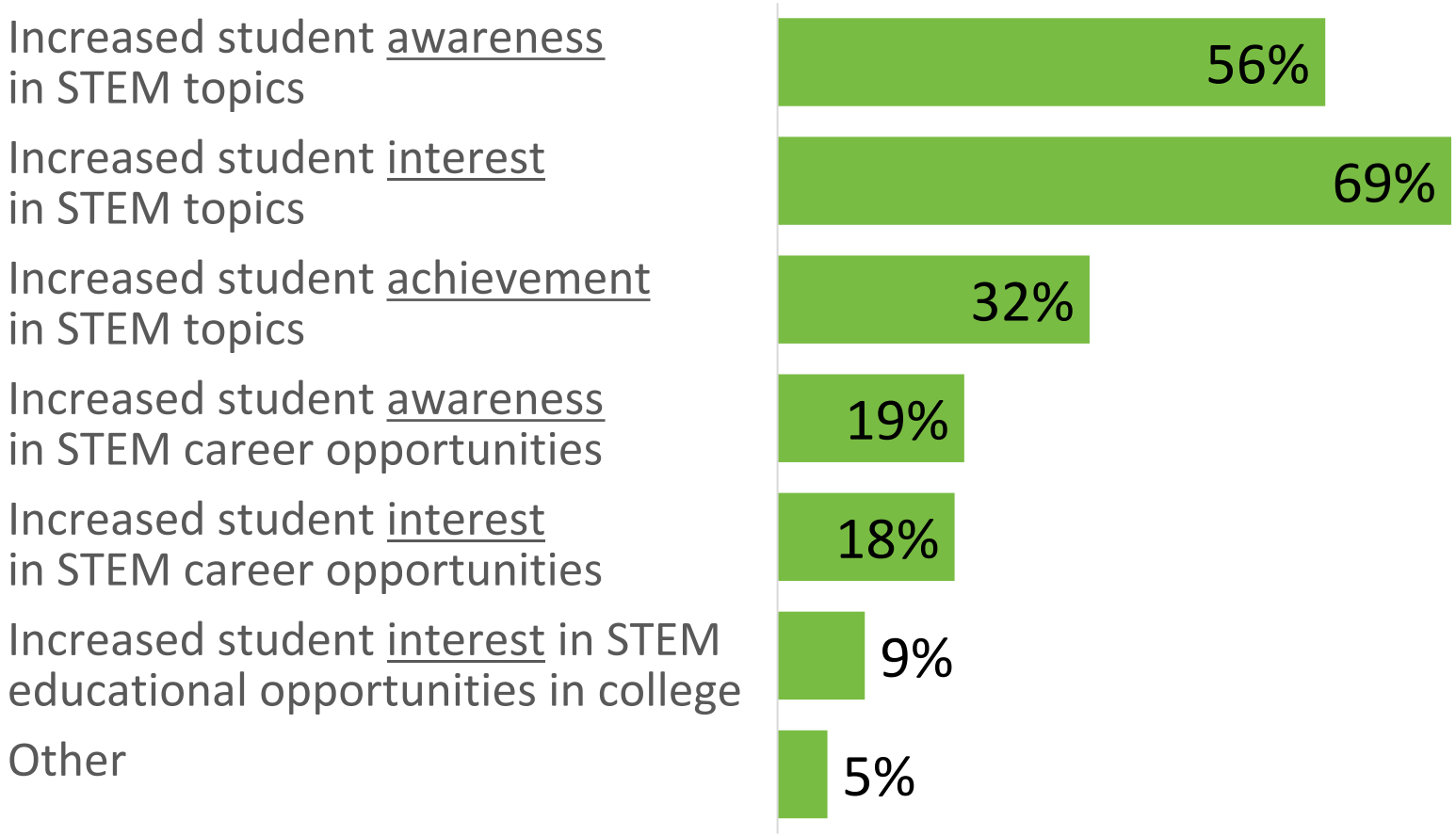
*It program really **opened my mind to the many ways STEM can be incorporated into library programming**. The Fierce and Fearless training in particular **helped me connect with teachers and STEM coaches** and provided a space to bounce ideas and explore new program possibilities.*

Cultivated teachers' skills

*Any learning, is good learning when it comes to STEM related topics. I am not strong in robotics, math, and some areas of science so being able to experience **these STEM Scale Up opportunities has completely turned my teaching around in a positive manner**.*

Observed Student Outcomes

Over two-thirds (69%) of educators observed increased student interest in STEM following STEM Scale-Up program participation



Interest in STEM

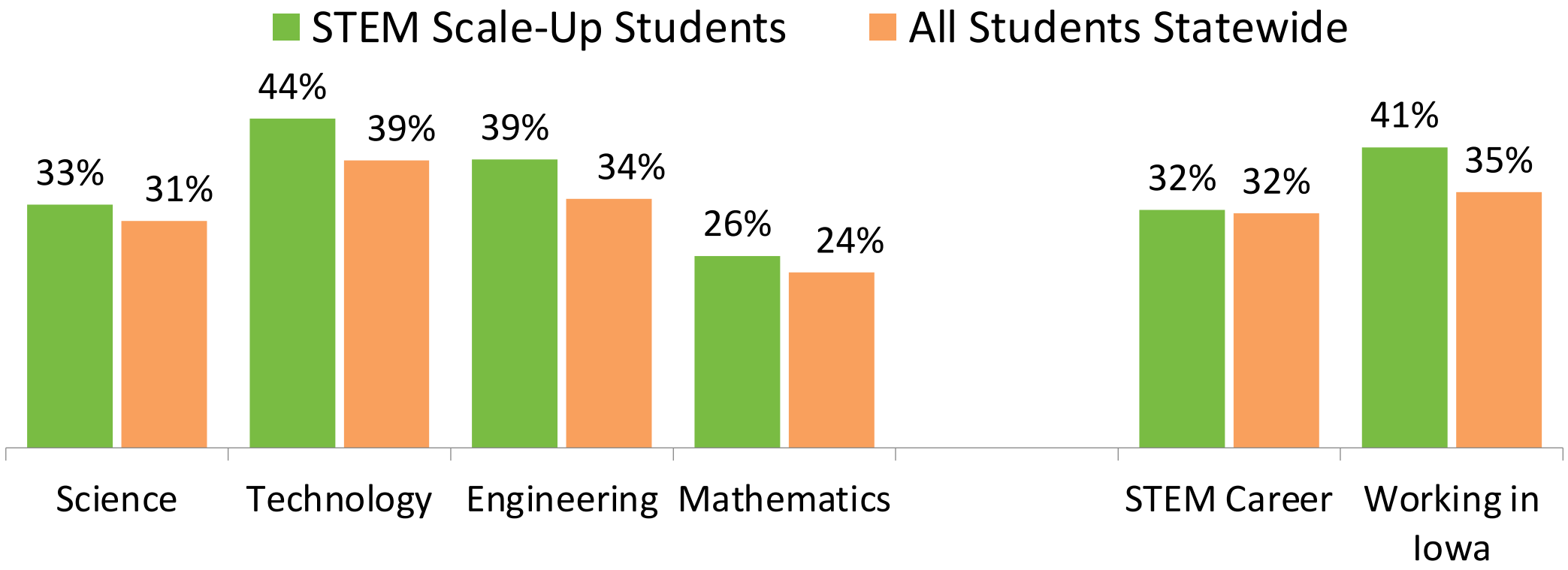
Over three-quarters of all students statewide are interested in STEM.

(% *Somewhat interested* and *Very interested*)

Students *Very Interested* in STEM

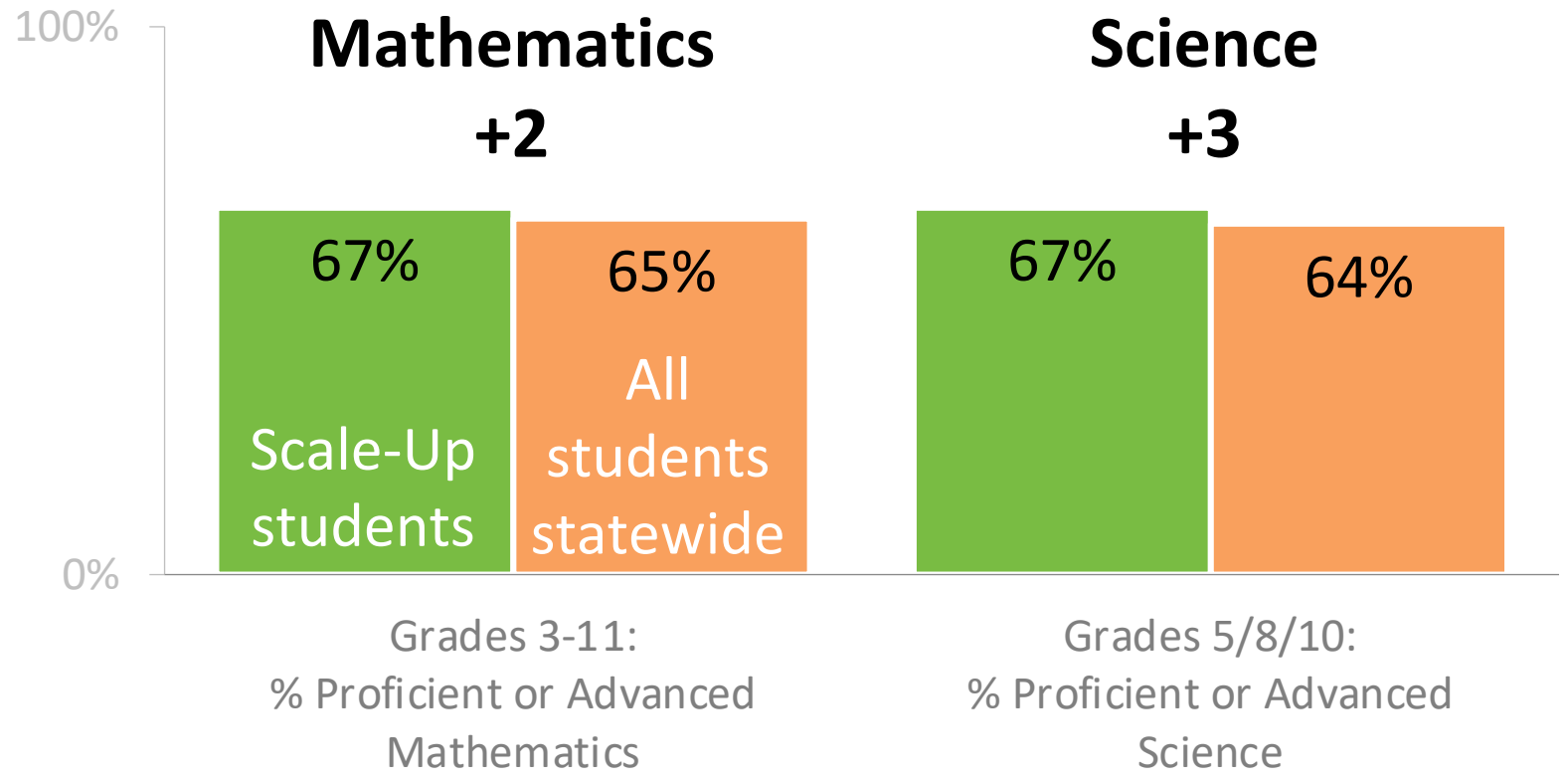
In 2021-2022, a higher percentage of students who participated in STEM Scale-Up programs reported greater interest in STEM subjects, and in working in Iowa after graduation compared to all students statewide

(*I like it a lot* (Grades 3-5) or *Very interested* (Grades 6-11))



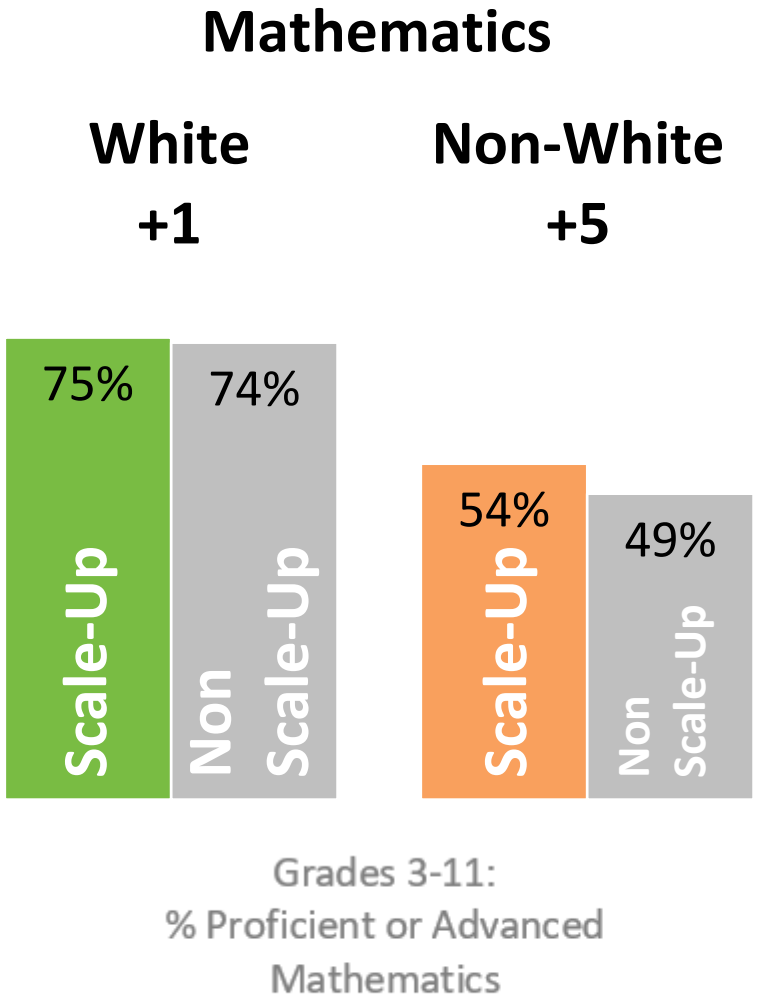
Increased Achievement

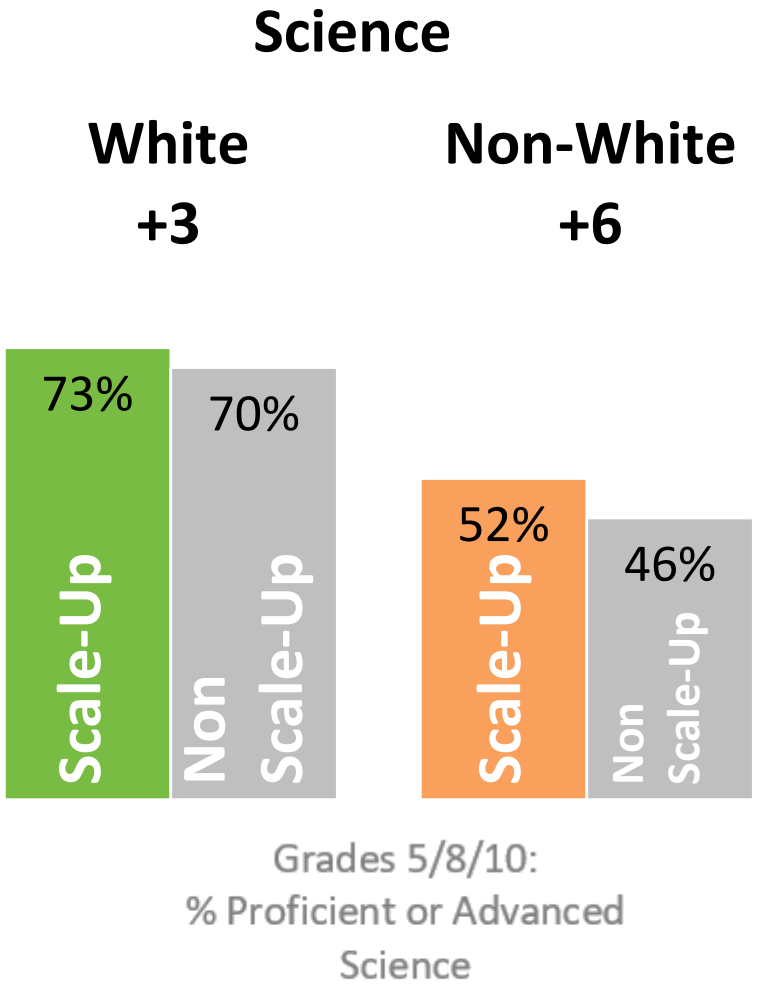
In 2021-2022, STEM Scale-Up Program participants performed better on the Iowa Statewide Assessment of Student Progress (ISASP) in *mathematics* (+2 percentage points) and *science (*+3 percentage point) compared to all students statewide.

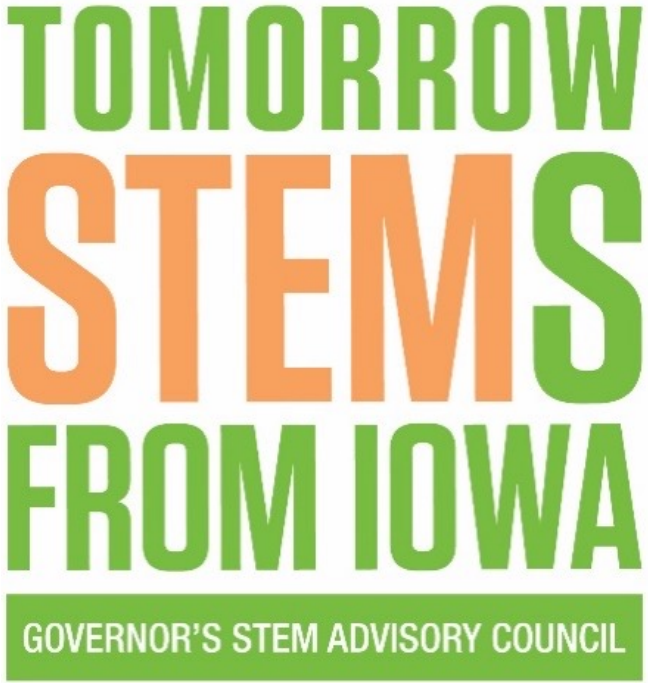


Increased Achievement, part 2

For minority students, STEM Scale-Up Program participants performed better in *mathematics* (+5 percentage points) and *science* (+6 percentage points) compared to minority students who did not participate







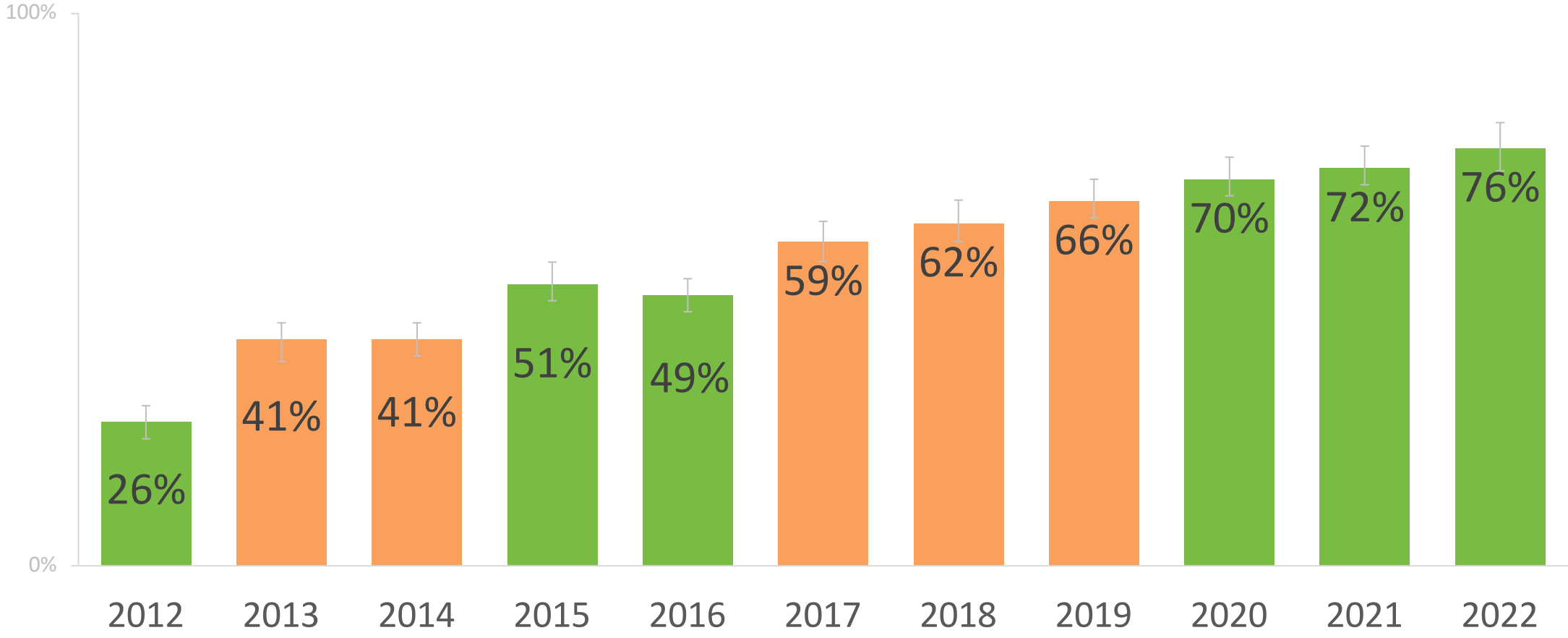
Statewide Survey of Adult Attitudes Toward STEM

2022

Have you read, seen, or heard of STEM?

7 in 10 Iowans (76%) said ‘Yes’

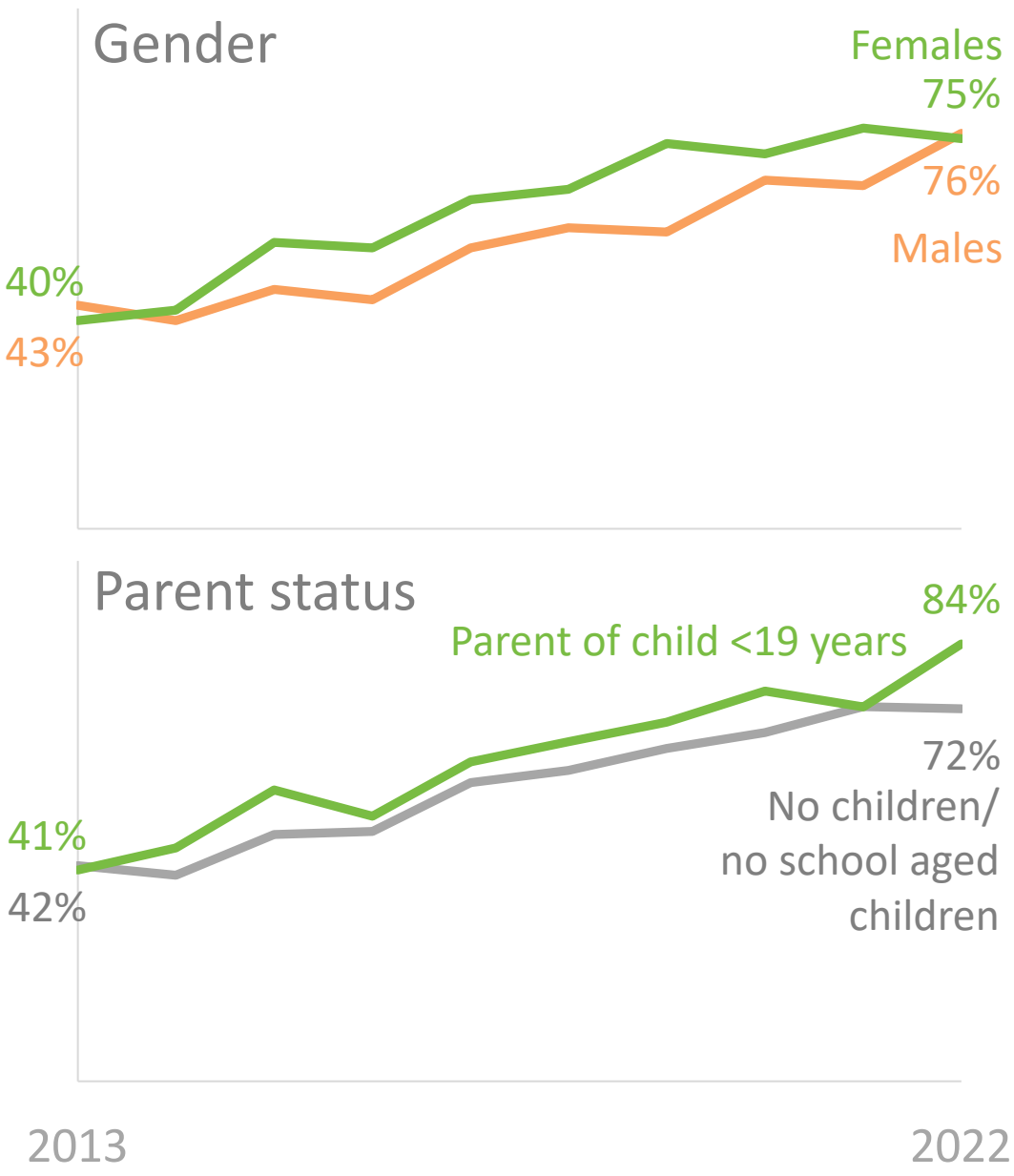
Awareness of STEM continues to increase year-over-year and is significantly higher than measured in 2019 and prior years.

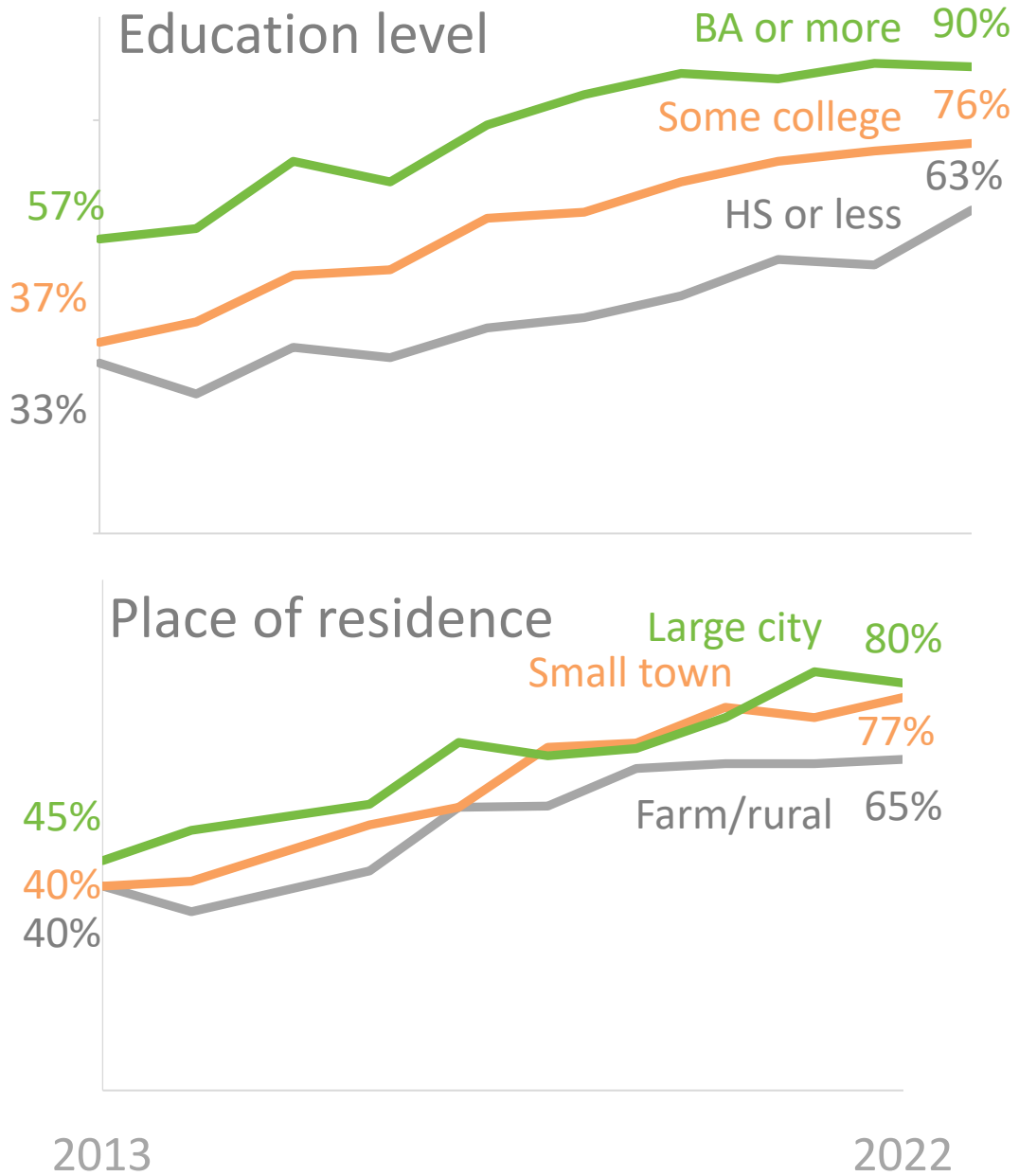


Question: STEM stands for ‘science, technology, engineering, and mathematics.’ Have you read, seen, or heard of this before? (% Yes)

Source: 2012-2022 Statewide Survey of Adult Iowans Toward STEM, Iowa STEM Monitoring Project, 2023

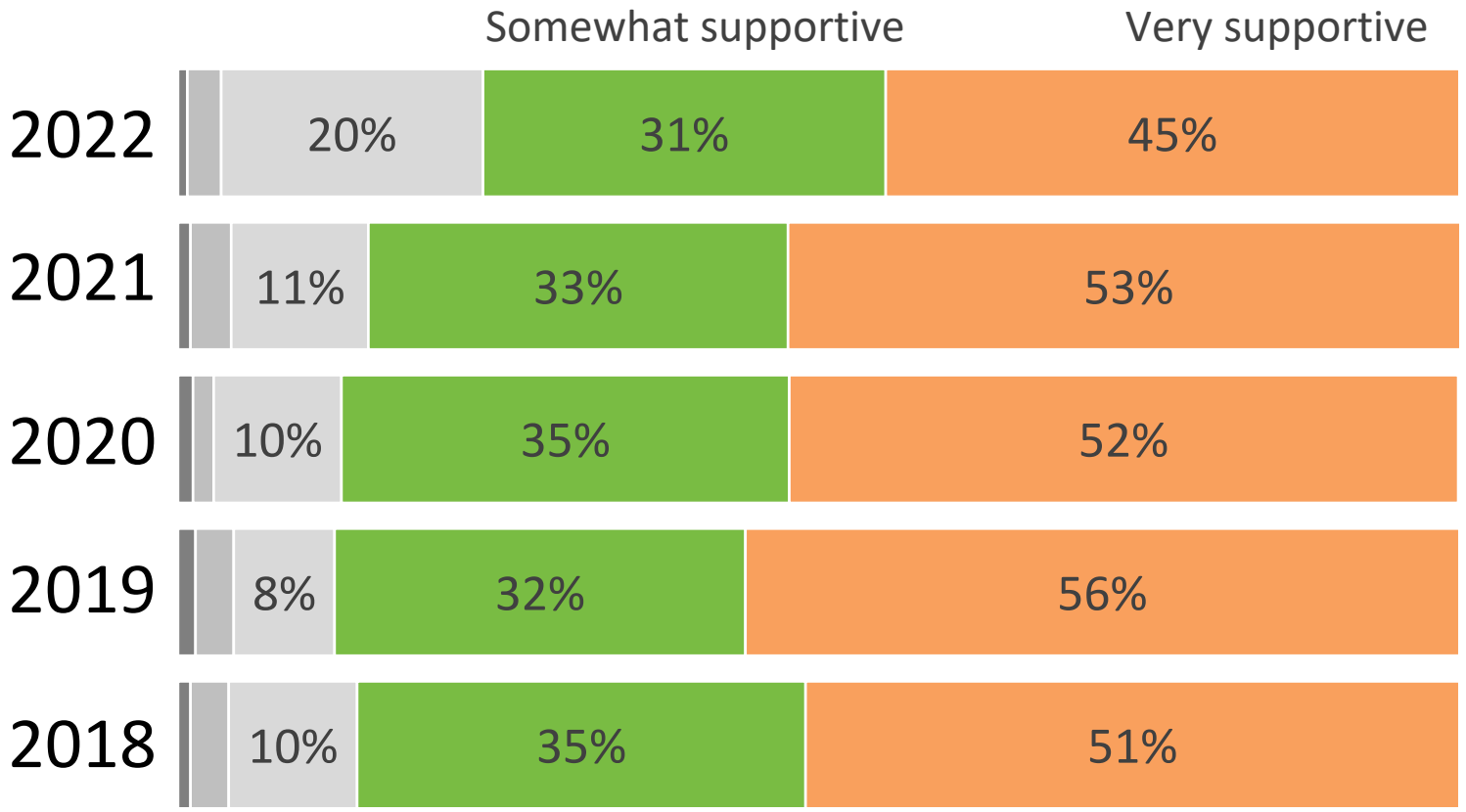
Awareness of STEM is has increased across all subgroups





Overall support for STEM efforts remains high

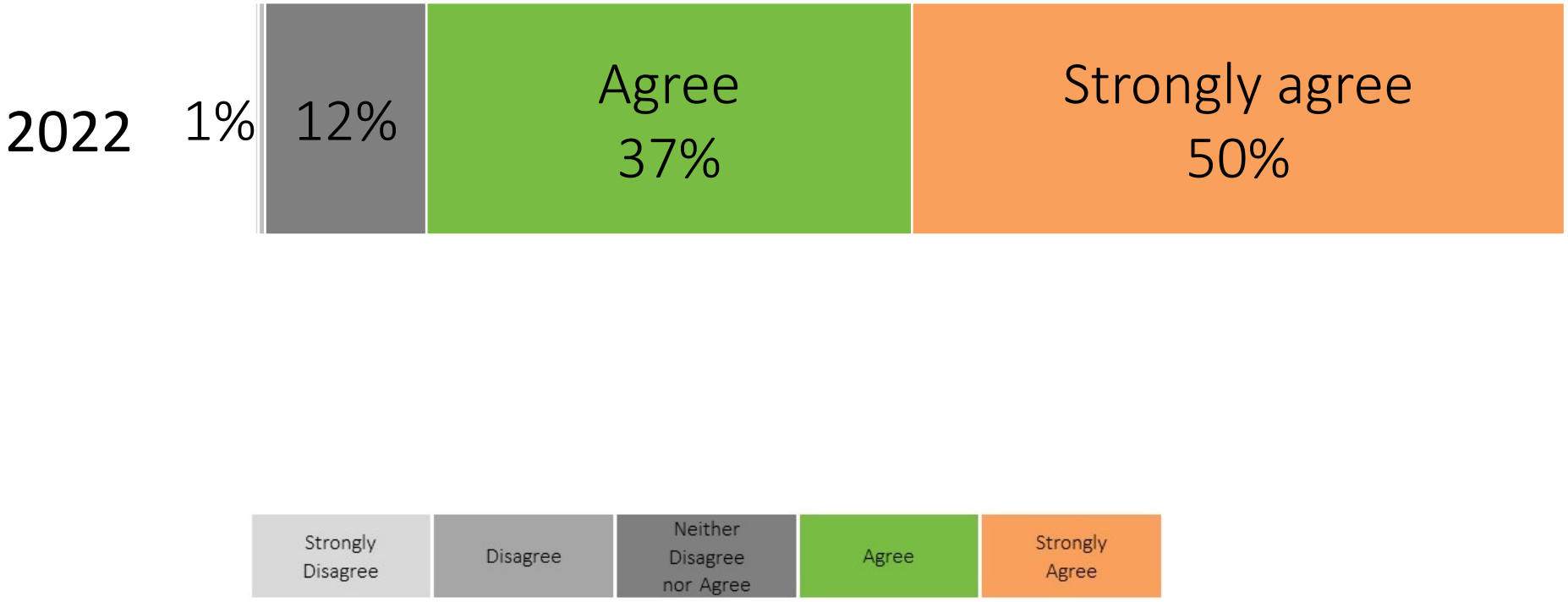
Over three-fourths (76%) of Iowans support efforts to devote resources and develop initiatives to promote STEM education in Iowa.



Question: Overall, to what degree do you support or oppose state efforts to devote resources and develop initiatives to promote STEM education in Iowa? Would you say you are… (% Very opposed, Somewhat opposed, Neither, Somewhat supportive, Very supportive)
Source: 2018-2022 Statewide Survey of Adult Iowans Toward STEM, Iowa STEM Monitoring Project, 2023

Iowans view of access to STEM education

Over 8 in 10 Iowans (87%) agree that every child should have access to a high-quality STEM education in PreK through 12th grade.



Question: Please tell me whether you strongly agree, agree, disagree, or strongly disagree with each of the following statements: Overall, the quality of STEM education in Iowa is high…. (% Strongly disagree, Disagree, Neither disagree nor agree, Agree, Strongly agree, Don't know/Not sure)
Source: 2022 Statewide Survey of Adult Iowans Toward STEM, Iowa STEM Monitoring Project, 2023

Iowans continue to support prioritizing STEM education

Nearly 9 in 10 Iowans (89%) think STEM education ***should*** be a priority in their local school districts, but only 44% say is it ***is*** a priority and another 28% ***don't know***.

Do you think STEM education **is a priority** in your local school district?

44%

(27% said No, 28% Don't Know)

Do you think STEM education **should be a priority** in your local school district?

89%

Question: Do you think STEM education **is a priority** in your local school district? (%Yes/No/Don't know)
Do you think STEM education **should be a priority** in your local school district? (%Yes/No)
Source: 2022 Statewide Survey of Adult Iowans Toward STEM, Iowa STEM Monitoring Project, 2023

Majority support for the role of STEM in Iowa

Three-fourths (75%) of Iowans agree that it is important for area businesses to be involved in STEM partnerships with K-12 schools.

.

Question: Please tell me whether you strongly agree, agree, disagree, or strongly disagree with the following statements
(% Don't know, Strongly disagree, Disagree, Neither agree nor disagree, Agree, Strongly agree)
Source: 2022 Statewide Survey of Adult Iowans Toward STEM, Iowa STEM Monitoring Project, 2023

UNI

University of Northern Iowa

Center for Social & Behavioral Research

Iowa State University

RISE

Research Institute for Studies in Education

The University of Iowa

ITP

Iowa Testing Programs

Thank you!
Questions?

TOMORROW STEMS FROM IOWA
GOVERNOR'S STEM ADVISORY COUNCIL

Council Working Group Ideas & Recommendations

Carrie Rankin, STEM Council Associate Director

TOMORROW STEMS FROM IOWA
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Rural Iowa STEM Education

Co-Chairs Mauree Haage, and Evrim Baran

Charge

Advise program administrators, the STEM Advisory Council and Regional Advisory Boards on ways and means for enhancing existing efforts and supporting new initiatives toward ensuring that Iowa's rural youth enjoy every opportunity to thrive in STEM education and the high-demand and rewarding careers that follow.

Members

- Co-chairs: Evrim Baran and Mauree Haage
- Members:
  - Barb Schwamman
  - Marc Benedict
  - Erin Chute
  - Mary Trent
  - Tyler Hahn
  - Mary Skopec
  - Beth Bunkers
  - Joni Ehm
  - Kimberly Zarecor
  - Lori Ihrig

Steps Taken

- Examined the definition of rural
- Identified opportunities that exist
- Gathered a list of possible challenges to rural STEM
- Researched existing STEM endorsements

Recommendation 1 – Continued Research

- Poll teachers, curriculum leads, etc. from rural schools who do not frequently participate in STEM opportunities through the state
  - Compile specific barriers
  - Determine specific needs
  - Leverage STEM Hub managers for data from the different regions
- Look at updated census data to determine how changes will impact the definition of rural for Iowa
- Identify ways rural schools have been able or could be able to sustain STEM programs

Recommendation 2 - Mentors

- Create a mentor system similar to STEM BEST models or CS is Elementary
  - People to contact for help or to visit
  - Playbooks on easy to implement STEM for rural schools
  - Help with generating ideas of sustaining STEM programs
- Regional networks of STEM educators who collaborate virtually and potentially holding regional workshop for rural STEM educators

Recommendation 3 - Endorsement

- Increase the number of teachers who hold a STEM specialist endorsement, particularly in elementary schools
  - Currently only 25 K-8 STEM, 17 5-8 STEM, and 10 K-12 STEM Specialist
- Potential ways of doing this:
  - Incentivize or help offset costs for rural school teachers
    - This is potentially a factor in why there has been larger growth in CS endorsement
  - Create communication geared toward administrators of the impact
  - Increase knowledge of this endorsement and reasons to hold the endorsement
  - Make obtaining more achievable/reexamine requirements to endorsement

Recommendation 4 - Communication

- Streamline communication of existing STEM opportunities
- Potentially create a "clearing house" of existing opportunities from all state entities such as STEM Council, AEAs, and higher education to eliminate confusion
- Reach out to pre-service programs to help new educators know of what exists
- Pre-service education component that deals with teaching STEM in a rural setting
  - Low budget STEM
  - Leveraging community partnerships
  - How to collaborate with other STEM educators

TOMORROW STEMS FROM IOWA

GOVERNOR'S STEM ADVISORY COUNCIL

STEM for All

Dr. Sara Nelson and Carly Harper

STEM For All Working Group

Co- Chairs: Sara Nelson, Carly Harper

Members:
Anderson Sainci
Pat Barnes
Camille Sloan-Schroeder
April Pforts
Sarah Derry
Mary Jackson
Bridgette Andrews
Sara Coleman
Leah Rodenberg
Tom Dodds
Jennifer Meier

Transforming STEM Learning

- Content Integration is Key
- A Need for Curriculum Materials
- Supporting Educators
- Transformative School & District Leaders

STEM for All - Updates

1. **STEM for All Resource Sheet**
   a. Living document highlighting potential resources for council members.
   b. Link to the doc is here.
2. **Practical STEM**
   a. Potential pilot between Scale Up and Iowa School for the Blind
   b. Intent is to increase support for students (and employees) with disabilities.
3. **Youth Advisory Council**
   a. The group is up and running!
   b. Their voice is impactful.

STEM For All - Recommendations

1. **Create a speaker series focused showcasing work that is currently happening in Iowa businesses.**
   a. Recommendation: One statewide event with networking opportunities.
   b. Recommendation: STEM Hubs hosting a "lunch and learn" of a singular business or panel. Potential partnership with local chambers of commerce to host the events.
   c. The STEM for All workgroup will work to support and be a resource for these events.

STEM For All - Recommendations

2. **Create a STEM signing day!**
    a. Recommendation: STEM for All workgroup will create a "run of show" as a resource for regional signing day(s).
    b. Recommendation: STEM Council could have a statewide signing day within existing events (i.e. Day at the capital, STEM Festivals, etc). Regional STEM Hubs could nominate students.
        i. Partners welcome for this process.

STEM For All Recommendations

3. **Practical STEM**
    a. Recommendation: Initiatives that support implementation of practical ideas for STEM for All efforts.
        i. Example: Upcoming pilot working to support students with disabilities in STEM.
    b. Recommendation: Advocate and support diverse mentors for STEM sponsored initiatives
        i. Continue to connect with diverse professional groups.

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GOVERNOR'S STEM ADVISORY COUNCIL

Thank you – Your support is appreciated!

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Youth Advisory Board

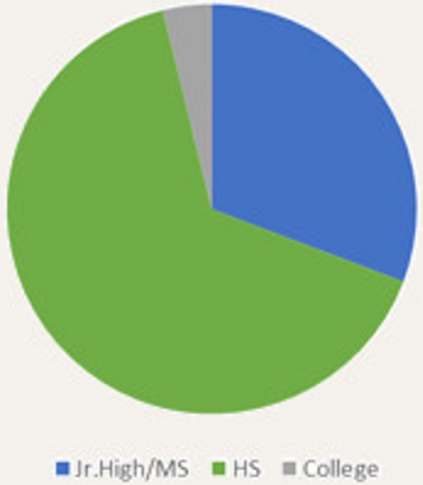
Allison Plunkett and Amber Pargmann, Sponsors

STEM Youth Advisory Board

Who are we?

We are a group of Iowa youth from middle school to college age who have a passion in science, technology, engineering, and mathematics, attempting to expand the STEM Council's reach to Iowa youth.

Youth Advisory Board

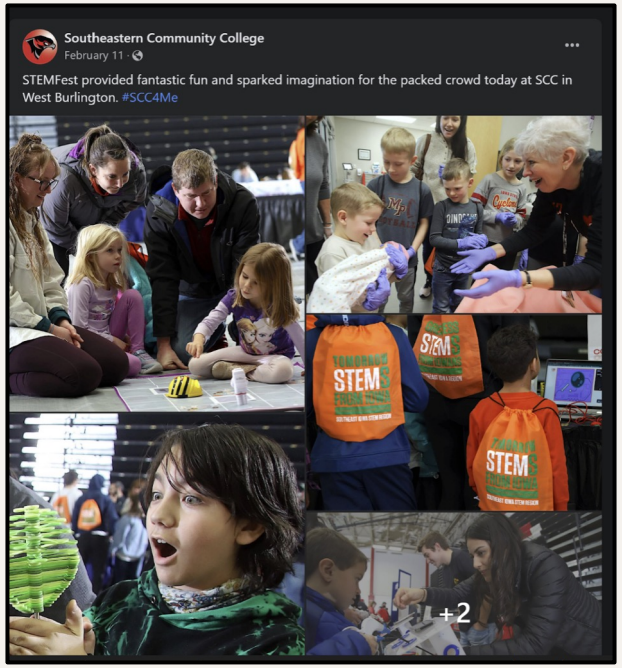


Our Mission

- Introduce STEM to rural communities
- Encourage Youth to engage in local STEM opportunities
- Provide an alternative perspective to STEM Board
- Promote local STEM events on social media

Highlights!

Connor presented about STEM in Iowa at the Iowa Student Council State Conference!



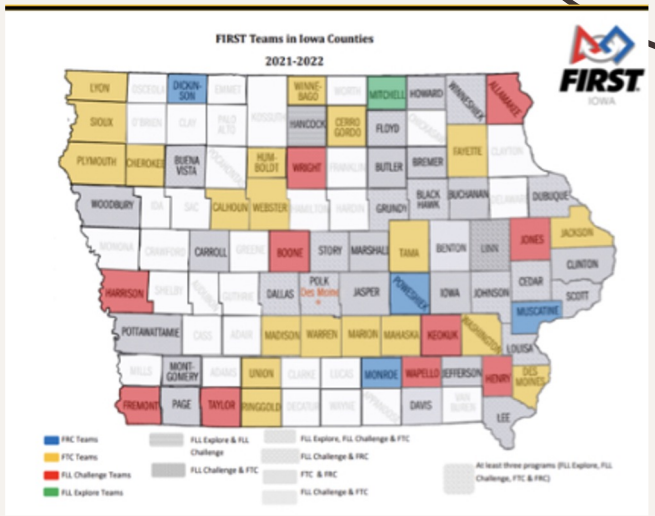
Tyler McGlasson from Southeastern Community College's STEMFest

Gabriela La Rota hosted a booth with her Girls In Tech club at the Girls In Science event!

Virtual Conference Update/Requests

- The Youth Stem Council is holding a virtual STEM conference in the Summer
  - Conference details: https://tinyurl.com/ymxpnhca
  - Zoom, 45 min breakout rooms, each repeated twice
  - AI & Computer Science, STEM Extracurriculars, Promoting STEM in Classrooms
- Zoom/Alternative Platforms to meet our conference requirements; free account is limited to 100 people and 45 minutes
- Promotion of the virtual conference through social media
- Advice/Recommendations on holding the event
- Funding for ‘Swag Bags’ (Gifts for our guest speakers)

FIRST Across Iowa- Reaching Out to Rural Schools



First Across Iowa

As part of our objective to **promote STEM in rural communities,** two Youth STEM board members launched the FIRST Across Iowa Initiative.

Our aim

- to establish a FIRST team in each of the 99 counties in Iowa that currently lack one.

How we are achieving this

- we are collaborating with neighboring teams to facilitate the creation of FLL teams in adjacent counties.
- We are also partnering with the Iowa Afterschool Alliance and school administrators

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STEM Realignment to Iowa Department Of Education

Prefatory Remarks: Chad Aldis, Jeff Weld

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Council Members Facilitated Discussion

Re-alignment of STEM to Iowa

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Advice for Successful Merger

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Announcements & Upcoming events

Lindy Ibeling, STEM Council Communications Manager

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Closing Remarks