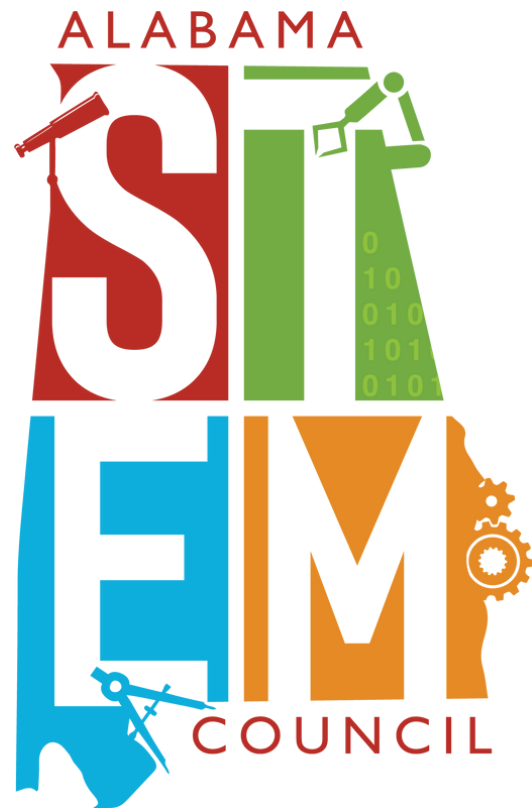
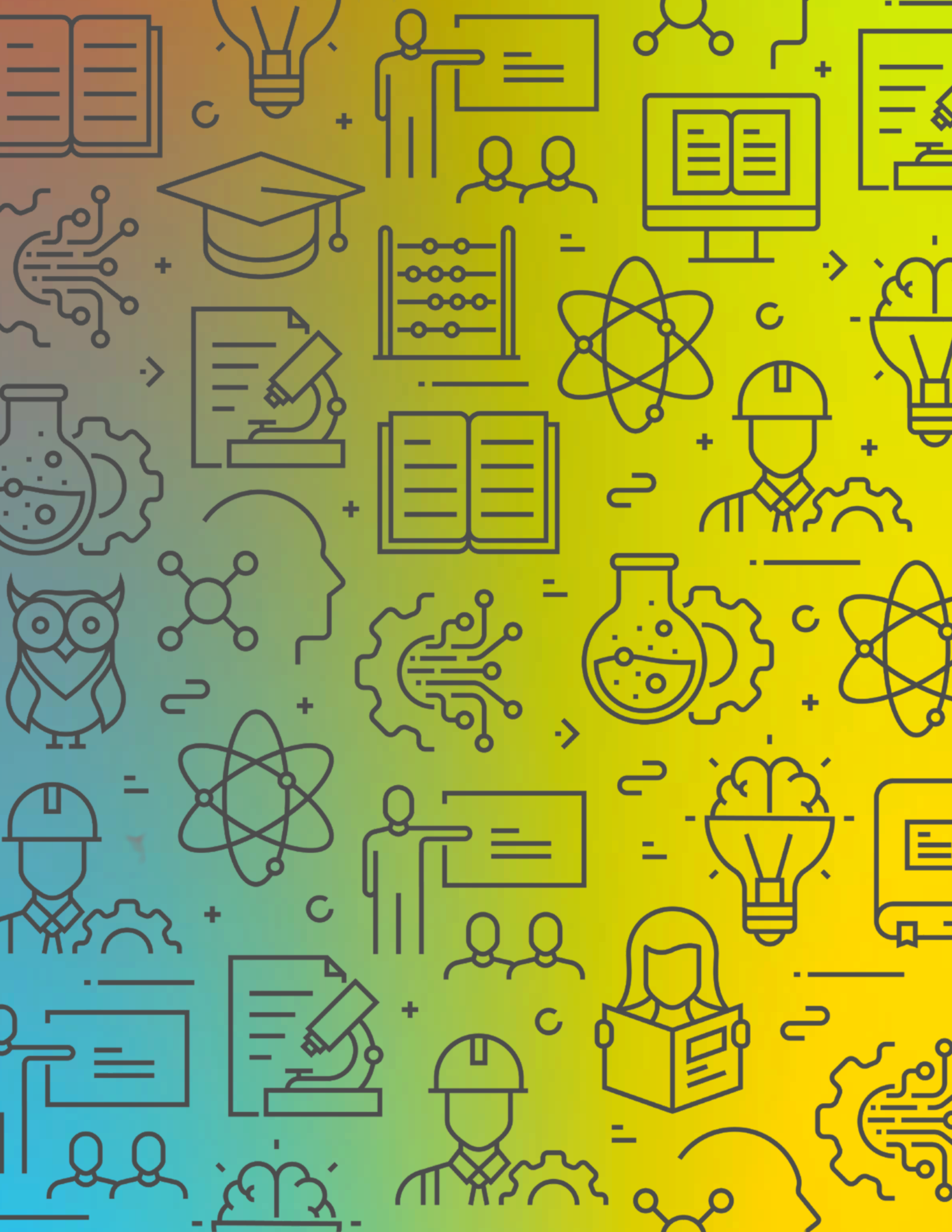


ANNUAL REPORT

2022





LETTER TO THE GOVERNOR AND ALABAMA LEGISLATORS

Dear Governor Ivey and Alabama Legislators:

During its second year, the Alabama STEM Council continued to make progress on the initiatives outlined in Alabama's Roadmap to STEM Success and Executive Order No. 721. The Council implemented a range of impactful STEM-focused experiences and resources in 2022, geared towards Alabama students, parents, educators and the community. Summer externships inspired teachers to connect in-class learning with real-world job skills. Our first Scale-Up initiative expanded the reach of six Alabama STEM programs. We launched an online dashboard showing math and science proficiency scores for every school system in Alabama and created a web portal to help families identify STEM programming taking place in their communities. We helped support a major teacher recruitment strategy and piloted an evaluation tool for Alabama's STEM programs.

Looking ahead, the Council is partnering with Alabama communities to strengthen regional STEM ecosystems and link formal and informal educational partners with local employers, policymakers and community leaders. We are introducing new programs that engage middle and high school students as STEM advocates within their schools. We will coordinate and oversee the evaluation efforts for the Alabama Numeracy Act.

The fifty-member Council includes representation from across Alabama's STEM industry as well as our state's primary, secondary, post-secondary, and informal education sectors. On their behalf, we are honored to submit the Alabama STEM Council Annual Report outlining the 2022 accomplishments and 2023 goals. We are grateful for your support of STEM education and STEM workforce awareness for our students and stakeholders.

Sincerely,



Neil E. Lamb, Ph.D.
Chair
Alabama STEM Council



Lee Meadows, Ph.D.
Executive Director
Alabama STEM Council



ALABAMA STEM 2022

BY THE NUMBERS

- 1 web dashboard released showing STEM proficiency scores for every Alabama school system
- 1 web portal released for Alabama families to find STEM programs near them
- 1 major initiative announced for designing the Alabama STEM Ecosystem
- 2 STEM Program Managers hired
- 6 universities submitted UTeach proposals to end Alabama's STEM teacher shortage
- 6 STEM programs shared \$100,000 in Scale Up funding
- 9 STEM programs participated in an evaluation pilot
- 35 STEM industries served as Teacher Externship hosts
- 41 teachers completed paid externships in STEM industries
- 1000+ people participated in STEM market research

ACCOMPLISHMENTS IN 2022

Scale Up Initiated

\$100,000 in total funding was awarded to 6 programs to expand their reach to Alabama students.

- Skills on Wheels brought a mobile STEM lab experience to 270 students. The participating student's completed activities in manufacturing, drones, computer programming, and more (implemented by Beta Box).
- Go Roving Alabama I challenged 2,250 students to become engineers as they were tasked with building and operating underwater remotely operated robotic vehicles (Implemented by the Dauphin Island Sea Lab).
- First LEGO League-Alabama expanded to serve 1,000 students in the global robotics program, with a focus on real-world problem solving (implemented by First in Alabama).
- STEM field trips enabled over 900 students from Title 1 schools to use the Gardens as a "living laboratory" to explore STEM concepts and career fields (implemented by the Huntsville Botanical Gardens).

SCALE UP

- Kilby Linking Lions allowed 170 students to engage in STEM activities through an expanded robotics program and media productions. These activities also included pre-service teachers from the University of North Alabama (implemented by Kilby Laboratory School).
- Coding Boot Camp equipped 40 students with a working knowledge of coding languages through a computer science-based summer learning experience (implemented by STREAM Innovations Inc).

UTeach Alabama Initiated

6 Alabama higher education institutions submitted proposals to significantly increase the number of STEM teachers they graduate.

- Legislature allocated \$4.5 million to STEM major teacher recruitment.
- Partnership was established with ACHE and the UTeach Institute.
- The RFP process was announced to all state-supported colleges & universities.
- 11 institutions submitted letters of interest.

Market Research Completed

New South Research completed a market research study engaging well over 1000 students, parents, teachers, and business leaders. All groups were positive about STEM.

- 1,345 people were surveyed including business & education leaders, teachers, parents, and students.
- Over 100 people participated in 12 different focus groups including teachers, parents, and students.
- Over 30 business, school leaders, and STEM council members participated in in-depth interviews.
- Top 3 things businesses considered doing to help promote STEM were job shadowing, partnering with school leaders, and providing STEM speakers at schools.
- Students want energetic, engaged, passionate teachers; hands-on projects; and real-world connections.
- Future messaging should focus on how STEM gives students key skills, engaged learning, and good jobs.

Teacher Externship Expanded

The number of teachers who completed externships in Alabama STEM Industries tripled.

- 41 teachers from across the state participated in the program, including middle school teachers, high school teachers, and community college instructors.
- 35 companies/agencies representing various STEM industries served as worksite hosts.



STEM Near Me Released

- Nearly 800 views and 126 unique searches in the soft launch phase of the STEM Near Me webpage connecting Alabama families with STEM programs near them.
- Engaged SciStarter to design a STEM program directory in coordination with their “Science Near Me” directory.
- Communicated with STEM program providers across Alabama to develop initial directory content.



STEM Program Evaluation Piloted

The Council improved its ability to lead high-quality program evaluation.

- 9 Alabama programs completed the STEMworks evaluation cycle.
- 10 Alabama STEM professionals completed STEMworks evaluation training.



Alabama STEM Ecosystem Initiated

Preliminary work has begun for the design of the Alabama STEM Ecosystem.

- The Executive Committee expanded the Council's focus to building STEM ecosystems.
- Council partnered with the Teaching Institute for Excellence in STEM to plan the design work for the Alabama STEM Ecosystem.
- The STEM Ecosystems Coordinator staff position was created, advertised, and filled.

STEM Proficiency Dashboard Released

K-12 STEM performance trends from 2016 to the present are clearly visible.

- Available at the STEM Council website.
- Examines the school system and school proficiency levels in math and science.
- Reports science and math proficiency levels as defined by the Alabama State Department of Education.



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PRIORITIES IN 2023

- Identify an experienced and qualified evaluator for the Alabama Numeracy Act, as guided by the Council's Executive Committee, and determine a process for evaluation of other STEM programs in the ETF.
- Fully launch the Alabama STEM Ecosystem.
- Implement a launch plan for Cohort 1 of local/regional STEM Ecosystems.
- Launch Alabama's first cohort of Chief Science Officers (CSOs), recruiting 50 middle and high school students as leaders and innovators.
- Report the impact of the 2022 Scale Up program, including the number of students and teachers impacted.
- Announce the 2023 cohort of Scale Up program awards, including the number of students and teachers to be impacted, the variety of learning experiences, and the geographic distribution of the awarded programs.
- Expand the STEM Teacher Externship program to include 60 externs & implement classroom-based STEM career learning follow-up involving industry partners.
- Demonstrate UTeach Alabama's initial success by recruiting over 300 STEM majors to explore STEM teaching.
- Increase by 100% the STEM Near Me posting by Alabama-based organizations and the participation by Alabama families.
- Demonstrably expand the Council's reach on social media, as shown by analytics.
- Implement a high-quality STEM communication campaign delivering the previously identified messages to audiences across the state.

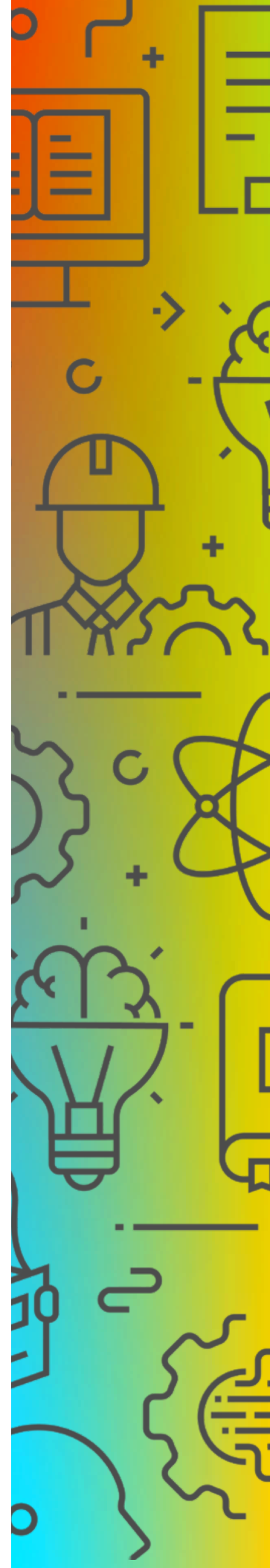
MISSION

The Alabama STEM Council was formed by Governor Ivey under Executive Order No. 721 in September, 2020.

The purpose of the Council is to “to advise the Legislature, the Governor, the Lieutenant Governor, and the State Department of Education on ways to improve STEM-related education, career awareness, and workforce development” across Alabama. The Council builds on the work of Alabama’s Roadmap for STEM Success and is situated administratively within AIDT in the Department of Commerce.

In June, 2022, Governor Ivey met with the Council and gave them the following charges:

- “Advocate for the work of the Council and for top quality STEM in your spheres of influence.”
- “Work to bring STEM industry leaders together with STEM education leaders to help them see the urgency in transforming STEM education at all levels.”



STRUCTURE

Leadership of the Council during the reporting period was provided by its 9-member Executive Committee, chaired by Neil Lamb, President at the HudsonAlpha Institute for Biotechnology. Executive Committee members were as follows:

- Congressional District 1: Terry Burkle, Executive Director, Baldwin County Education Coalition
- Congressional District 2: Dawn Morrison, Computer Science State Administrator, Alabama State Department of Education
- Congressional District 3: Charisse Stokes, Executive Director, TechMGM
- Congressional District 4: Vicki Karolewics, President, Wallace State Community College
- Congressional District 5: Sheila Holt, AMSTI Director, University of Alabama - Huntsville
- Congressional District 6: Liz Huntley, The Hope Institute (Co-Founder), Lightfoot, Franklin & White LLC (Counsel)
- Congressional District 7: RaSheda Workman, Vice President for Strategic Initiatives, Stillman College
- At Large: Charles Nash, Senior Vice Chancellor Emeritus, the University of Alabama System

The Executive Committee was fully engaged in the Council's work, chiefly in setting the strategic direction of the Council. The Executive Committee met twice by Zoom and once in person, and the Council maintains records of each of those meetings. Neil Lamb led the Executive Committee in his role as chair.

The Council had 49 total members drawing from the 5 sectors of STEM industries, K-12 & higher education, CTE/post-secondary training, informal STEM education, and public officials/leaders. A full listing of the current members and their affiliations is given on the Council's homepage. The full Council met once via Zoom and twice in person, and the Council maintains records of each of those meetings.

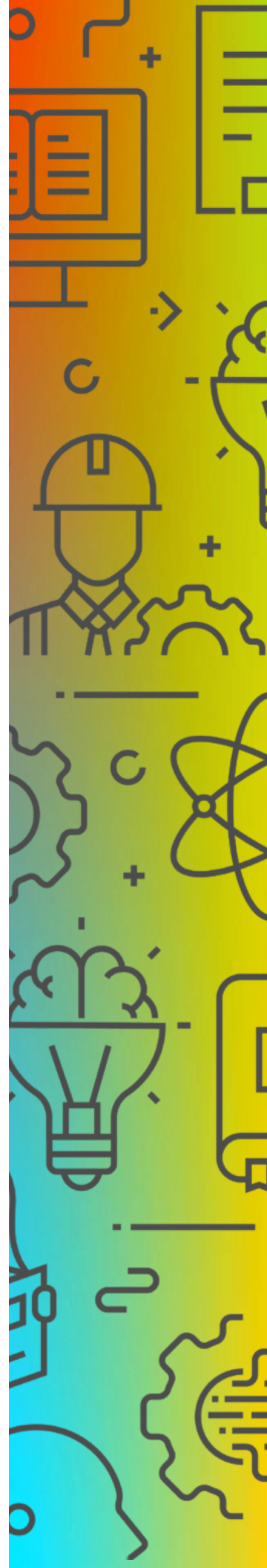
The Council made a key shift in its operational structure from Working Groups to a staff-led approach. The Working Groups ended their work and gave final reports in June 2022. Highlights of those reports appear below.

The STEM Operations Team now drives the work of the Council forward, managing its day-to-day operations:

- Lee Meadows, Executive Director
- Lawrence Cooper, STEM Programs Manager
- Rene McNeal, STEM Ecosystems Coordinator
- Hope Trego, Communications Specialist

Amy Hammett served as STEM Programs Manager for part of the reporting period.

AIDT provided key support to the STEM Operations Team, especially in the areas of financial management, hiring, IT, and communications support.



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WORKING GROUPS

CAREER EXPLORATION & WORKFORCE DEVELOPMENT

Leader: Keith Phillips

Members: Jimmy Hull, Josh Laney, K-Rob Thomas, Ken Tucker, Kevin McGhaw, & Liz Huntley

Accomplishments:

- Overall guidance to Teacher Externship Expansion.

COMMUNICATIONS

Leader: Jill Corbin

Members: Terry Burkle, Andre Harrison, Christy Swaid, & Amy Templeton

Accomplishments:

- Overall guidance to New South Research in completing market research work.

EVALUATION

Leaders: Mary Lou Ewald & Tina Miller-Way
Members: Jeff Gray, Andre Green, Joni Lakin, Kathryn Lanier, Charles Nash, Jim Purcell, & Brenda Terry

Accomplishments:

- Overall guidance to STEM Program Evaluation Pilot.
- Conducted focus groups with partnering STEM providers and in-state reviewers.
- Developed Alabama-specific questions and accompanying rubrics that were utilized in the STEMworks evaluation process and selection of Scale Up grant recipients.

LANDSCAPE ANALYSIS AND SCALE UP

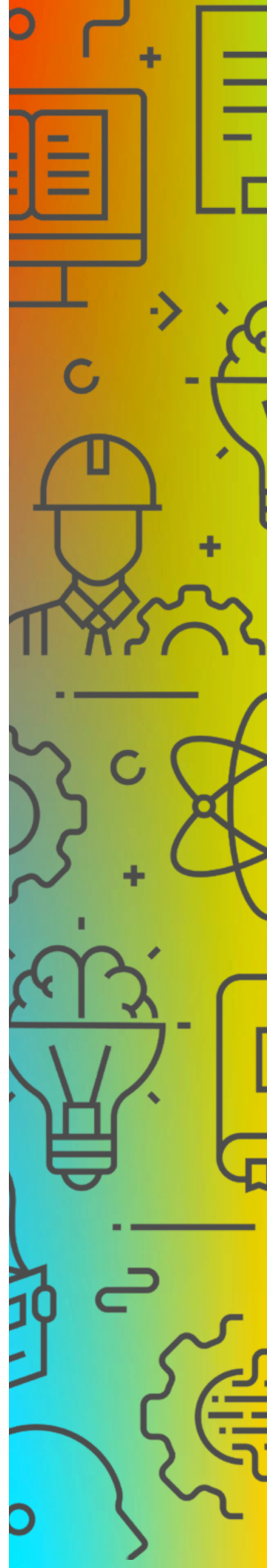
Leader: Amy Hammett
Members: Virginia Davis, Sandy Ledwell, Robin McGill, Dawn Morrison, Daryl Taylor, Kay Taylor, & Sean Stevens

Accomplishments:

- Overall guidance to the initial Scale Up program, including serving as the selection committee.
- Overall guidance to STEM Near Me Pilot.



Photo courtesy of Talladega County Schools



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MATH EDUCATION

Leader: Calvin Briggs

Members: Sheila Holt, Cynthia McCarty, Vicky Ohlson, & Timothy M. Wick

Accomplishments:

- Identified evidence-based interventions to strengthen mathematics leadership at K-12 schools.
- Recommended a range of leadership approaches and training to support mathematics achievement, teacher recruitment, and student mathematics engagement and support.

STEM ECOSYSTEMS

Leaders: Adrienne Starks & Lee Meadows

Members: Barbara Cooper, Tammy Dunn, Elisabeth Davis, Vicki P. Karolewics, Paul Morin, Charisse Stokes, & Tina R. Watts

Accomplishments:

- Overall guidance to Alabama STEM Ecosystem Kickoff.
- Overall guidance for the creation of the STEM Ecosystems Coordinator position.

