

# ANNUAL REPORT

2021



# LETTER TO THE GOVERNOR AND ALABAMA LEGISLATORS

Dear Governor Ivey and Alabama Legislators:

We are pleased to provide this overview of the inaugural year of the Alabama STEM Council. The Council successfully launched and has made meaningful progress towards the recommendations identified in Alabama's Roadmap to STEM Success and Executive Order No. 721.

The 50-member Council includes representation from across Alabama's STEM industry as well our state's primary, secondary, postsecondary, and informal education sectors. This cross-disciplinary approach allowed the council to organize into topic-based working groups with significant subject-matter expertise. Collectively, the council crafted a set of foundational goals to engage, prepare and nurture Alabama's future STEM workforce.

Several pilot projects were launched in 2021, including a teacher externship program, a market research study and a STEM-based television show currently airing on Alabama Public Television. These early successes will be expanded in 2022. The STEM Council will also introduce a suite of online tools allowing parents to identify STEM initiatives within their community and policymakers to track STEM education and engagement metrics across the state.

We are honored to submit the 2022 Alabama STEM Council Annual Report, outlining our accomplishments in 2021 and our goals for 2022. It was a year of firsts and we are enthusiastic about the opportunities that lie ahead. Thank you 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

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

# EXECUTIVE SUMMARY

Alabama's STEM Council has made significant progress during its first year of existence. The Executive Committee set the Council's strategic direction based on the guidelines of the Governor's Executive order. Council membership accomplished multiple foundational objectives through a set of working groups, and the Executive Director coordinated the component parts and led the Council's daily operations.

## **ACCOMPLISHMENTS IN 2021**

- Launched the STEM Council and all associate components.
- Hired an Executive Director with a proven record in Alabama STEM.
- Established a website along with a presence across multiple social media channels.
- Produced and distributed a What is STEM? short video in collaboration with AlabamaWorks.
- Successfully piloted a teacher externship program, matching secondary science and math teachers with STEM industry partners from every workforce region in partnership with AlabamaWorks.
- Initiated a market research study on awareness and attitudes on STEM.
- Together with HudsonAlpha, Southern Research, AMSTI and other supporters, developed and began production of Alabama STEM Explorers, a 26 episode educational television series airing Saturday mornings on Alabama Public Television.
- Set 2022 priorities through a series of working groups, advancing the recommendations outlined in Alabama's STEM Roadmap and the Governor's Executive Order.

## **PRIORITIES FOR 2022**

- Launch a statewide media campaign focused on increasing STEM awareness and promoting STEM engagement, using the results of the completed marketing research study.
- Identify PK-12 STEM opportunities currently offered across Alabama. Showcase program information through an interactive website.
- Establish a statewide STEM data dashboard to track changes in STEM-associated metrics over time.
- Pilot an evaluation process that reviews, advises, and strengthens existing state-funded STEM programs.
- Implement an exploratory scale-up project to increase access to quality STEM programs across Alabama.
- Craft a Math Instructional Leadership Framework for K-12 principals and other administrators.
- Develop a STEM K-12 School Leadership Academy in partnership with AlabamaWorks! and STEM industry stakeholders.
- Expand the teacher externship program piloted in 2021.
- Establish a tax-exempt foundation supporting the work of the STEM Council.
- Provide updates on STEM initiatives and STEM Council progress to policymakers and other stakeholders.



# MISSION

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

The purpose of the Council is "to advise the Legislature, the Governor, the Lieutenant Governor, and the State Department of Education on ways to improve STEMrelated 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.



# STRUCTURE

Leadership to the Council is provided by its 9-member Executive Committee, which is chaired by Dr. Neil Lamb, VP for Education Outreach at the HudsonAlpha Institute for Biotechnology.

### Executive Committee members are as follows:

- **Congressional District 1:** Terry Burkle, Executive Director, Baldwin County Education Coalition
- **Congressional District 2**: Dawn Morrison, Computer Science State Administrator, Alabama State Dept 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, University of Alabama System

In November 2020, Dr. Lee Meadows was hired as interim Executive Director, while on a leave of absence from his position as a professor in the UAB School of Education. In April 2021, the Executive Committee asked Dr. Meadows to continue as Executive Director beyond the interim period. The Council has 49 total members drawing from the 5 sectors of industries, K-12 & higher education, CTE/postsecondary training, informal STEM, and public officials/leaders. A full listing of the members and their affiliations is given on the Council's website, <u>https://stemcouncil.alabama.gov/</u>.

To make progress in its first year, the Council organized its membership into the six working groups given below along with each group's initial charge:

- **Communicating STEM:** Identifies ways to increase STEM awareness, illustrate the importance of STEM skills and highlight Alabama-specific STEM careers and pathways. Target audiences are students, parents, and school, district and community leaders – especially those from underrepresented populations. The working group was charged with producing a set of prioritized actions, associated costs and ways to measure the impact of those actions.
- Data Tracking: Determines the types of STEM data needed to track Alabama's progress towards meeting STEM strategic goals identified in the STEM Council executive order and the AL STEM Roadmap. Metrics may include participation in STEM activities, indicators of STEM achievement, measures of awareness and attitude towards STEM careers, labor market data etc. The working group was charged with identifying existing data sources, recommend approaches to obtain data that is currently not captured and identify potential costs associated with tracking, storing and reviewing STEM data.





- Early Numeracy & Math Coaching: Identifies evidence-based interventions to strengthen numeracy and computational thinking at the elementary school level, with a special emphasis on developing math coaches. This group was charged with recommending particular implementation approaches geared to a range of school experiences as well as highlighting best practices and potential pitfalls from past initiatives. The recommendations were to include processes for educator professional learning and ongoing support, formative and summative assessment measures, and key funding considerations.
- Evaluating Alabama STEM Initiatives: Identifies and develops criteria to evaluate STEM-based curricula and educational initiatives that receive funding from the Alabama Education Trust Fund, beginning with AMSTI and ASIM. Criteria include but are not limited to student and educator-focused measures, the effectiveness of human capital and resource storage/delivery, the fidelity of implementation across sites. These measures were to be chosen in consultation with AMSTI/ASIM and aligned where possible with the implementation of their continuous improvement plan. The working group was also charged with identifying a preliminary set of external evaluators with the expertise/ability to conduct this assessment and noting the general cost to do so.
- Scale Up: Develops a process to identify effective, evidencebased STEM-based initiatives and instructional strategies and expand their use across Alabama's schools, after-school programs, or other educational settings. Particular emphasis is on reaching underrepresented populations. Similar processes elsewhere may be used as a starting point and customized for Alabama. The working group was charged with producing an implementation plan, methods to assess the impact of the program, and an estimated budget for implementation.

• STEM Career Exploration and Workforce Development: Identifies ways to increase access to work-based learning opportunities within STEM pathways. This begins by defining the career categories that utilize STEM knowledge. The working group was charged with also offering recommendations to

- 1. expand the numbers of industry partners providing work-based experiences,
- 2. develop work-based experiences for students in STEM deserts,
- 3. incorporate STEM career connections in the classroom, and
- 4. grow relevant certification and training programs. Metrics for success and general estimates of program costs were also to be developed.

## THE STEM COUNCIL'S ACCOMPLISHMENTS IN 2021

Through the challenges of the COVID19 pandemic, the STEM Council made good progress in getting its work up and going. All of the Council's work was done virtually throughout 2021. This includes meetings of the full Council in December, March, and June; meetings of the Executive Committee in November, April, and September; and all meetings of the Working Groups from December until June. Dr. Meadows worked remotely from his home office in Birmingham.

## **EXECUTIVE COMMITTEE**

The Executive Committee was fully engaged in the Council's work, chiefly in setting the strategic direction of the Council, hiring staff, and determining initial policy and procedure. The Executive Committee met by Zoom four times in 2021, and the Council maintains minutes of each of those meetings. Dr. Neil Lamb led the Executive Committee in his role as chair.

Decisions at the November meeting, the first meeting of the Executive Committee, focused on beginning the Council's initial work. They reviewed the Executive Order No. 721 and Alabama's Road Map for STEM Success, the job description for the Interim Executive Director, and the roster of STEM Council members. They discussed and determined the priority tasks for the Council's work in the year ahead and provided direction for the first meeting of the full Council in December. Priorities were based on a correlation of Executive Order 721 and the STEM Road Map.

Decisions at the January and April meetings focused on initial operations and actions of the Council. The Executive Committee reviewed reports regarding the Interim Executive Director's activities, the Council's finances, and Working Groups' progress. They approved a budget for 2021; a \$10,000 allocation for Alabama STEM Explorers; and procedures for electronic meetings, vendor relationships, curriculum



endorsements, and adding new Council members. In April, they decided to offer Dr. Meadows the position of Executive Director, extending his work beyond the interim period.

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Decisions in September focused on finalizing the Council's 2021 work and setting the framework for 2022. The Executive Committee reviewed and acted on the final recommendations from each Working Group and established the 2022 Goals. (See full descriptions below.) They approved New South Research as the top proposal for the market research study, STEMworks as the evaluation service provider for STEM programs evaluation, the hiring process for a STEM Program Manager and a part-time Communications Specialist, and the process for forming a 501c3 foundation to support the Council's work.



## WORKING GROUPS

The full Council membership was engaged in the Council's work chiefly through the Working Group structure. The full Council also met together three times by Zoom across the reporting period, and full recordings are available for each meeting.

Each of the Council's Working Groups successfully completed their assigned charges. Working Groups were convened as part of the first Council meeting in December, and members were assigned in a manner balancing their stated group preferences with diverse representation on each group. Working group members, including the chair for each group, is given on the Council's website. During the March meeting, each working group gave a progress report on their work thus far, fielded questions from the Council, and received individual feedback from Council members. Feedback was collected during the meeting by a document, and working groups reported high value on the feedback they received as part of this process.

Working Groups presented their final recommendations during the June meeting and their final reports to the Executive Committee in writing during July. Each group's final presentation is easily accessible, and highlights from their recommendations are as follows

- **Communicating STEM:** Hire part-time STEM Communications Coordinator to assist with social media content and implementing the communications strategies determined by the working group. (Early in their work, this group also produced an initial plan for STEM Communication and implemented several items from that plan as described in detail below.)
- **Data Tracking:** Dedicate STEM Council funding to support a robust data infrastructure, including staff to support STEM data collection and reporting. Develop and maintain a public-facing, web-based dashboard for STEM indicators in the areas of student engagement and achievement, educators, curriculum, employment, and investment.
- Early Numeracy & Math Coaching: Strengthen the quality of K-5 mathematics instruction by placing a math coach in every Alabama elementary school. Develop a mathematics instructional leadership framework based on research and best practices identifying the desired essential competencies of a highly effective principal. Invest in a K-2 diagnostic interview tool to determine key numeracy concepts students have mastered and uncover student misconceptions.
- Evaluating Alabama STEM Initiatives: Establish a partnership with a national-level evaluation service provider to develop an Alabama-specific evaluation rubric. Commend the work of AMSTI and continue to monitor and evaluate their progress under the new rubric. Revisit legislation annually for each ETF funded STEM program. Policies around ETF-funded programs draw on STEM expertise across the various Alabama stakeholders. Create and make public an annual summary of the STEM programs, initiatives, and organizations funded by the ETF and other state-funded programs, initiatives and organizations made public. Establishment an Alabama STEM Innovation Network composed of seven STEM Innovation Centers, one in each of the seven Workforce Development Regions.





- Scale Up: Establish an interactive website for PK-12 STEM programs, events, and competition. Hire a Program Manager to over see the process and serve as a liaison between the Alabama STEM Council and other stakeholders (providers, teachers, parents etc.) Conduct landscape mapping and analysis to enable equitable access
- STEM Career Exploration and Workforce Development: Expand educator externships to more locations and more teachers in order to support K-12 STEM-focused curriculum opportunities in work-world setting. Plan a STEM leadership institute for school leaders based on the Educator Workforce Academy model in place in the regional workforce councils.



## FIRST INITIATIVES & PARTNERSHIPS

Although the Council's work was primarily focused on laying a foundation for future work, it did accomplish several initiatives as either pilot projects or preliminary work on subsequent projects. It also advanced STEM in Alabama through forming key partnerships. The Career Career Exploration and Workforce Development group led a pilot Teacher Externship project. In July, two secondary science or math teachers from each AlabamaWorks! region, for a total of 14 teachers, went on three day-long visits with STEM employers from their area to learn about the connections between the classroom content they teach and the world of work.

The participating teachers were selected from well over 100 applications. The participating industries were Daikin, G&G Steel, and Lockheed Martin (Region 1); Eastman, Honda, and Kronospan, Inc. (Region 2); MBUSI and CAMGIAN (Region 3); Dunn Industries and Evonik (Region 4); Alabama Power, Alaskan Northstar, and Bailey-Harris Construction (Region 5); Arista Aviation, Great Southern Wood Preserving, Inc., Wiregrass Construction, and Wiregrass Electric Cooperative (Region 6); and AM/NS Calvert, Airbus/FlightWorks, and Austal (Region 7). A follow up survey with employers and a focus group with participating teachers indicated good results from the pilot program and enthusiasm about continuing and expanding the program in future years.

The teacher externship project would not have been possible without the support of the Executive Directors of the Regional Workforce Councils and their staff. Their assistance was a hallmark of the growing partnership between the Council and AlabamaWorks! This is a natural and productive partnership around Alabama's need for high-quality STEM education leading to a skilled STEM workforce. The Council sees a productive continuation of this partnership building its regional work across the state within the seven AlabamaWorks! regions.

The Communications Working group quickly moved to begin the Council's initial work on communicating the value of STEM to stakeholders across the state. The social media campaign they led in May significantly increased the Council's presence with the following increases in follows: 450% on Twitter, 2700% on Instagram, and 2525% on Facebook. In cooperation with AlabamaWorks, they produced and distributed the 'What is STEM?' short video.



Communications also set the stage for some of the Council's major work in the year ahead by beginning a market research study on STEM in Alabama. Following AIDT protocols, they released an RFP for a market research study, received several high quality proposals, and forwarded their recommendations to the Executive Committee. In September, the Executive Committee selected New South Research as the winning proposal, and New South began their work the following month. Results from the market research study will be used to create a major marketing campaign communicating the value of STEM education and STEM employment to student, parents, educators, and other key Alabama stakeholders.

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In partnerships with HudsonAlpha, Southern Research, AMSTI, and AMSTEC, the Council began the production of Alabama STEM Explorers, a series of 30-minute television episodes airing now on Alabama Public Television. The show engages middle school students in learning about STEM content and related STEM careers in Alabama. Dr. Neil Lamb, chair of the Council, and Dr. Kathryn Lanier, chair of the Communications Working Group, are two of the co-hosts of the series. A key feature of each episode is career spotlights of people working in STEM careers in Alabama, and the Council's network of STEM employers has been critical to showcasing the diversity of Alabamians working in STEM.

The Council and the National Math and Science Initiative were named as the lead partners in the Remote Hub Initiative legislation sponsored by then Representative Bill Poole, Representative Danny Garrett, Senator Arthur Orr, and others. The project will provide virtual instructors to increase the STEM achievement of students in rural areas, and the project is initially focused on improving the mathematics achievement of students in Bullock County. The Council's key contribution was engaging the partnership of UABTeach faculty and staff to provide UAB undergraduate STEM majors as the first cadre of virtual instructors.



## **EXECUTIVE DIRECTOR**

The Executive Director was fully engaged in the the daily operations of the STEM Council's work, serving as the only paid staff member of the Council. Dr. Meadows worked remotely from his home and, where needed, from AIDT's AWTC training center, both in Birmingham.

With working groups, Dr. Meadows served to convene and facilitate their work together and their progress toward achieving their goals. He attended almost all of the working groups' meetings across the reporting period, and for many of the groups he set up their meetings, hosted those in Zoom, or both. He played a key role in coordinating the work of the different groups and guided them in not duplicating efforts. As the groups got up to speed, he began hosting monthly meetings of the working group chairs and vice-chairs so that they could better understand the work going on across all groups. Although a necessity of the pandemic at first, virtual meetings became a successful meeting strategy for gathering Council members from across the state. Most working groups met either weekly or biweekly.



With the Executive Committee, Dr. Meadows served to both facilitate their meetings and to catalyze their discussions of the Council's initial strategic planning. Drs. Lamb and Meadows co-planned the agendas for each executive meeting, Dr. Lamb led the actual meetings, and Dr. Meadows hosted in Zoom. Dr. Meadows set up and maintained an electronic document system for assisting Executive Committee members with keeping track of key decisions, meeting minutes, and Council finances.

In January, Dr. Meadows began implementing a system of strategic planning to guide the operations of the Council. This system developed across the year into a set of quarterly goals aligned to an annual plan, weekly action-oriented goals, monthly reporting to the Executive Committee, and weekly reporting to Dr. Lamb. The system was created with Council growth in mind, especially the adding of additional staff. The focus of this system, as deliberated by the Executive Committee, is a Council vision for all Alabama students receiving high quality STEM learning, and a near-term mission of communities in each of the state's workforce region regions having successful STEM education pathways thus supplying Alabama's STEM workforce.

Dr. Meadows worked actively on increasing the Council's presence and honing its messaging. He spoke to groups of business and education leaders whenever possible, either virtual or in-person. Although, these opportunities were limited because of the pandemic. He and AIDT Communications staff guided the creation and building out of the Council's website. He and the Communications Working Group established the Council's social media presence on Twitter, Instagram, and Facebook.

## THE STEM COUNCIL'S PRIORITIES FOR 2022

The Executive Committee, after considering the final recommendations from each working group and recommendations from the Executive Director, including hiring and budget, has finalized the following as the Council's goals for 2022.

## **WORKING GROUPS**

The following goals will be assigned to each working group as they begin their work in 2022. The Building STEM Ecosystems group is a new working group. The others are continuing groups, although their names may have changed some.

#### **Building STEM Ecosystems**

- Implement a plan for building STEM ecosystems and engage the first cohort of communities in beginning their work.
- In partnership with AlabamaWorks! and key STEM industry leaders, plan a year-long STEM leadership institute for school leaders based on the Educator Workforce Academy model in place with the regional workforce councils.

#### **Career Awareness & Exploration**

• Expand educator externships, including increasing the number of host sites, participating teachers, and overall funding.

#### Communications

- Complete a statewide marketing research study to inform and refine the Councils' communications strategy for increasing STEM awareness and promoting STEM engagement.
- Develop and begin the launch of a media campaign.

#### Evaluation

- Through a partnership with STEMworks, identify and adapt high-quality criteria to evaluate STEM-based education programs and apply those criteria to the evaluation of 25 STEM programs, including AMSTI and ASIM.
- Train 12 Alabama educators on high-quality criteria as statebased reviewers.
- Continue to monitor and evaluate AMSTI progress, particularly with high-quality criteria.



• In partnership with the Executive Director and Council Chair, begin advocating for policies requiring ETF-funded programs to draw on STEM expertise across the various Alabama stakeholders, following the criteria set by the Evaluation Working Group.

#### Landscape Analysis & Scale Up

- Build an interactive website through a partnership with AIDT to provide landscape mapping of Alabama's PK-12 STEM opportunities.
- Begin landscape mapping of Alabama's PK-12 STEM opportunities, including after school, camps, events, and competitions. Develop a plan for more in depth landscape analysis including gap identification and mitigation.
- Plan and implement a pilot scale-up project for Summer 2022, collecting feedback to advise development of a 5-year scale up plan.

#### **Mathematics Education**

- In partnership with the ALSDE, make demonstrated progress toward the goal of placing a math coach in every Alabama elementary school.
- Lead the development of a Math Instructional Leadership Framework identifying the desired essential competencies of a highly effective principal.



## **STEM OPERATIONS CENTER**

The STEM Operations Center will begin to grow and develop in the year ahead as staff are added to the STEM Council. Following are the goals they will focus on.

- Hire a STEM Program Manager responsible for overseeing the development of the data dashboard on STEM indicators, landscape mapping, and pilot scale up.
- Hire a part-time STEM Communications Administrative Coordinator to assist with the implementation of communications initiatives from the communications working group and AlabamaWorks!
- Create a STEM data dashboard integrating with the STEM Council website and supporting a robust data decision-making infrastructure around the Council's adopted logic model.
- Work in concert with the Governor's office and legislature to codify the STEM Council by law.
- Guide the formation of a tax-exempt foundation supporting the work of the STEM Council.
- Engage legislators in conversations around how the STEM Council can support legislative decision making and review of ETF funded STEM programs using high-quality criteria.
- Maintain routine operations:
  - Support all Working Groups in making steady progress.
  - Prioritize response to Governor's Office and legislative officials.
  - Manage successfully all important meetings, especially meetings of the Executive Committee and the full Council.
  - Fulfill requests for updates on STEM initiatives and STEM Council progress to policymakers and other stakeholder groups.
  - Serve as point of contact for interfacing with other state and national STEM initiatives.
  - Research & provide high quality technical information on existing STEM programs and initiatives.
  - Prepare operating procedures, bylaws, and norms of engagement for approval by Executive Committee.
  - Keep website up-to-date.



## WORKING GROUP SUMMARY

## **COMMUNICATIONS WORKING GROUP**

#### Members:

Kathryn Lanier (Chair) Calvin Briggs Terry Burkle Andre Harrison Christy Swaid Kay Taylor Amy Templeton \* Jill Corbin

## **Key Accomplishments & Final Recommendations**

Implemented a preliminary communications plan and completed a social media campaign significantly increasing the Council's visibility.

Assisted with implementing the production of Alabama STEM Adventures, a series of 30-minute TV episodes to be aired on APTV highlighting core concepts of STEM and focusing on how science and technology are applied in STEM careers across Alabama.

Lead the RFP process resulting in New South Media being selected to conduct a statewide market research study to inform and refine the Council's communications strategy to increase STEM awareness and promote STEM engagement.

Recommended the hiring of a Part-Time STEM Communications Administrative Coordinator to support the stewardship and coordination of the STEM Council's social media platforms and communications initiatives in coordination with AlabamaWorks!

## DATA TRACKING WORKING GROUP

#### Members:

Robin McGill (Chair) Matthew Durdin Sandy Ledwell Cynthia McCarty Tina Watts Tim Wick Fitzgerald Washington

### **Final Recommendations**

Dedicate STEM Council funding to support a robust data infrastructure, including the following costs:

- Dedicated staff to support STEM data collection and reporting (see recommendations on staffing).
- Professional services for developing a STEM data dashboard that integrates with the STEM Council website.
- Mini-grants for stakeholders (administrators, educators, community members) to expand awareness and use of STEM data.
- Design and printing services for hard copies of data reports to share with key stakeholders.
- Consulting services to support the development of new STEM datasets based on stakeholder input.

Build staffing capacity at the STEM Council to carry out the following activities related to data:

- Develop and maintain a public-facing dashboard that displays current data on STEM indicators.
- Manage contracts/vendors needed to support the dashboard and ensure that the interface is user-friendly.
- Coordinate with communications staff on reports or products featuring STEM indicators.
- Manage an ongoing data working-group charged with data processes and procedures.
- Develop and conduct professional development activities for stakeholders to understand their STEM data and engage in strategic planning based on data.





Use STEM Council resources (committee time, funding, and staff) to conduct the following activities related to STEM data:

- Adopt the logic model as organizing strategy for STEM Council for goal-setting, decision-making, and measuring success of Council activities.
- Adopt a set of STEM indicators to track progress toward goals.
- Ensure that data can be disaggregated by important demographic and geographic categories that can drive meaningful decisions.
- Develop and maintain a public-facing, web-based dashboard for indicators.
- Develop a data management/governance plan that includes policies and procedures for transmitting data, updating data, requesting data or reports, sharing data between stakeholders, maintaining privacy/security.
- Work with data owners to develop new datasets in those areas where important STEM education data is not currently available.

## EARLY NUMERACY & MATH COACHING GROUP

### Members:

Sheila Holt (Chair) Elisabeth Davis Tammy Dunn

- \* Ann Dominck
- \* Bianca Gaither
- \* Laura Ruth Hunter
- \* Melissa Campbell
- \* Jeanne Simpson

### **Final Recommendations**

Strengthen the quality of K-5 mathematics instruction by placing a math coach in every Alabama elementary school to provide job-embedded instructional support for teachers, not to exceed twenty-four teachers per math coach. Leverage the investment in the Alabama Math, Science, and Technology Initiative by using their specialists to provide training and support to the math coaches who in turn provide the job-embedded training and support for classroom teachers, assist with professional learning communities, examine student work with teachers, and meet with teachers to analyze data. Math coaches plan and co-facilitate professional learning for teachers. Professional learning will be differentiated based on the needs of the school. It is further recommended the Alabama Math, Science, and Technology Initiative provide ongoing regional Coaching Communities as a means for math coaches to remain current in their practice and to mentor novice coaches.

Develop an instructional leadership framework based on research and best practices that identifies the desired essential competencies of a highly effective principal at the following levels:

- Aspiring preparing for principalship
- Emerging receiving mentoring in initial two years of practice
- Developing developing and refining leadership skills
- Transformational building necessary skills and knowledge to lead schools in ways fully responsive to students' needs (Liang, G. & Slotnick, W., September, 2020).

Invest in a K-2 diagnostic interview tool to determine key numeracy concepts students have mastered and uncover student misconceptions. Provide teachers with training and support in effective implementation and interpretation of the tool. This tool will be used with students who have been identified as struggling in mathematics based on benchmark assessments and/or teacher observation.





## EVALUATION STEM INITIATIVES WORKING GROUP

#### Members:

Charles Nash (Chair) Mary Lou Ewald Jeff Gray Andre Green Tina Miller-Way Brenda Terry \* Joni Lakin

### **Final Recommendations**

Commend Alabama STEM Council their work and continue to monitor and evaluate their progress, particularly under the new STEM education rubric suggested in Recommendation 2.

Establish a partnership with an evaluation service provider for evaluating Alabama-based STEM education programs for the purpose of identifying evidence-based STEM curriculum and to develop an Alabama-specific evaluation tool and rubric. To build evaluation capacity in the state, train 12 Alabama educators with the selected evaluation service provider as state-based reviewers.

Revisit the legislation for each ETF funded STEM program periodically (on a scheduled basis). The process should include soliciting comments from experts in specific areas with consultation by the ALSDE to achieve a more realistic timeline of project solicitation, implementation, and evaluation.

Revise the policies around ETF-funded programs so that they draw on STEM expertise across the various Alabama stakeholders.

Develop annually and make public on the Alabama STEM Council website a summary of the STEM programs, initiatives, and organizations funded by the ETF and other state-funded programs, initiatives and organizations in order to achieve more transparency with Alabama taxpayers regarding STEM education priorities.

Establish an Alabama STEM Innovation Network composed of seven STEM Innovation Centers, one in each of the seven Workforce Development Regions.

## **SCALE UP WORKING GROUP**

#### Members:

Virginia Davis (Chair) Paul Morin Dawn Morrison Adrienne Starks Sean Stevens

### **Final Recommendations**

Establish an interactive website for PK-12 STEM programs, events, and competitions. Build the interactive website through a partnership between AIDT & the Connectory.

Hire a Program Manager to oversee the process and serve as a liaison between the Alabama STEM Council and other stakeholders (providers, teachers, parents etc.) Specific duties include overseeing implementation and use of the interactive website, beginning landscape mapping of AL PK-12 STEM Opportunities, and planning a pilot scale-up project for Summer 2022, all with an emphasis on diversity equity and inclusion.

Focus the landscape mapping process on the key features of distribution of programs in the system by zip code every quarter; identification of gaps in access to high quality programming; investigation of areas of low access in collaboration with other stakeholders, collaboration between non-profits, schools, and communities; and exploration of virtual STEM programs to augment in-person activities



## STEM CAREER EXPLORATION & WORKFORCE DEVELOPMENT WORKING GROUP

#### Members:

Josh Laney (Chair) Ronald Davis Jimmy Hull Liz Huntley Tim McCartney Kevin McGhaw Keith Phillips Daryl Taylor K-Rob Thomas Ken Tucker

#### **Final Recommendations**

Expand educator externships to more locations and more teachers, increase funding and funding sources, and smoother operations for the support of STEM focused curriculum opportunities in work-world settings.

Plan a STEM leadership institute for school leaders based on the "Educator Workforce Academy" model in place in the regional workforce councils focused on school leaders and including direct engagement of STEM industries.



## STEMCOUNCIL.ALABAMA.GOV



