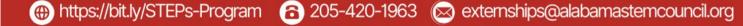


>>>>

2025 WORKSITE HOST HANDBOOK

Mercedes-Be





1TA

Table of Contents

Introduction3
Program Overview4
Key Features of the Alabama STEM Teacher Externship Program:
Benefits for Educators and Students:4
Program Goals:4
Bridging Classroom Learning to Future Careers: The Role of STEM/CTE Teacher Externships in Workforce Preparation:
Insights from STEM teacher externs and worksite hosts6
Worksite Host Planning8
Role and Expectations8
Externship Duration8
Preparation for Externship8
During the Externship9
Evaluation and Feedback9
Future Engagement9
Contact and Coordination9
Teacher Roles and Expectations10
Teacher Extern agrees to:10
Guiding Questions
Guiding Questions: 11 Before Your Externship: 11 During Your Externship: 11 Focus on Alabama Workforce Needs: 11 After Your Externship: 11
Resources
Sample Externship/Work Plan Agendas
Science and Engineering Practices17
Mathematical Practices18
Photo/Video Release Form

Introduction

Welcome to the Alabama STEM Teacher Externship Program (STEP). Launched in 2022, this program represents a pivotal step towards integrating real-world industry experiences into our educational framework. Inspired by successful national models, our program is designed to forge a bridge between classroom theory and practical application, enhancing the educational journey of both teachers and their students.

Within these pages, you will find a comprehensive guide to navigating the externship process from preparation and participation to reflection and feedback. This handbook serves as both a roadmap and a resource for participating educators and business hosts alike, ensuring that each externship is as beneficial and impactful as possible.

The Alabama STEM Teacher Externship Program is more than just a professional development opportunity; it is a community initiative that brings together educators, businesses, and industry leaders to collaborate towards a common goal: to equip our future workforce with the skills and insights needed to thrive in a rapidly evolving world. By providing teachers with firsthand experience in STEM-related industries, we enhance their instructional capabilities and enrich the learning experiences of their students.

We are immensely grateful to all our partners—educators who are eager to expand their horizons, and business leaders who generously share their expertise and resources. Your commitment to this program fuels its success and redefines the boundaries of traditional education.

As you embark on this journey, we encourage you to embrace the challenges and opportunities that come with stepping into new environments. The experiences you gain here will not only broaden your professional perspectives but also inspire your students to explore new paths and possibilities.

Thank you for your dedication and enthusiasm. Together, we are Building a STEM Ready Alabama!

Program Overview

The Alabama STEM Teacher Externship Program offers educators a transformative 3-day immersion into various professional settings, where industry leaders enrich teachers with real-world knowledge and skills. By spending time within industry settings, teachers directly engage with current trends, essential skills, and practical knowledge relevant to their subject areas. This hands-on experience not only enriches their teaching practices but also makes the learning experience more meaningful and relevant for students, directly linking classroom theory with practical industry applications.

Key Features of the Alabama STEM Teacher Externship Program:

- Industry Insight and Skill Enhancement: Educators gain direct exposure to advanced industry practices and tools, enhancing their professional skills and teaching methodologies.
- Workplace Cultures: Through activities ranging from job shadowing to project-based assignments, teachers experience the diverse atmospheres and operations of modern workplaces, enriching their understanding of various industry sectors.
- Professional Networking and Collaboration: Teachers engage with a range of industry professionals, broadening their professional networks and learning about effective teamwork and collaboration in real-world settings.

Benefits for Educators and Students:

- Educators deepen their understanding of industry trends, enriching their curriculum with realworld applications.
- Students are introduced to relevant career paths, developing the academic and technical skills required to thrive in their future endeavors.

Teacher externships are a vital link between Alabama's classrooms and its growing STEM industries, preparing both educators and students to meet the demands of a dynamic workforce.

Program Goals:

- Give teachers the opportunity to see the latest real-world applications of STEM disciplines in a local business or industry.
- Create lasting partnerships between businesses and local schools.
- Increase awareness of potential career pathways in Alabama.
- Define employability skills development needed in business and industry.
- Provide an opportunity to gather information for designing curriculum and improving instruction
- Show the connection of the Science, Engineering, and Math practices and Career Technical Education standards to the modern workforce.

Bridging Classroom Learning to Future Careers: The Role of STEM/CTE Teacher Externships in Workforce Preparation:

To help all students be prepared for college and careers, teachers must constantly update their own knowledge and skills about current workplace practices, requirements, and tools by gaining a "real world" understanding of economic and career trends that will affect their students. The externship experience helps teachers connect classroom content with students' future career interests and helps students develop both the academic and technical skills required in the world they are preparing to enter.

To facilitate this immersive learning experience, our program includes externship hosts from varied sectors, such as:

- Automotive manufacturing
- Biotechnology
- Energy
- Modern and traditional manufacturing
- Aerospace
- University research
- Chemical manufacturing
- Healthcare

The STEP also aims to highlight the target sectors in Alabama's new strategic economic growth plan *Catalyst*. The plan identifies initiatives that will help Alabama prepare for growth and then pursue specific opportunities in each of the 10 sectors.



Insights from STEM teacher externs and worksite hosts



"We are super grateful to be able to raise awareness of STEM importance in careers and help connect the dots for teachers in developing the next generation's workforce." -Laurel Harp

Calhoun County Economic Development Council

"This was a fantastic learning experience and opportunity to make connections with workforce professionals and manufacturing leaders for my students. I am very excited to collaborate and plan for events for my students and bring hands on and interactive learning opportunities to my students."

-J. Harper, Jacksonville City Schools





"The benefits of a company/organization participating is that it allows the teacher to make a connection between the classroom and the workplace. This can then be communicated to the students to show how their current coursework is relevant in the "real world". Adrienne Johnson– Alabama Power "It was a very enlightening experience that I think all teachers should engage in at least once. I now feel more empowered to teach skills that are relevant and connected to real life experiences. I also feel as though I can better guide and inform my seniors as they embark on a new life after high school." - L. White, Monroe County Schools





After her summer externship experience, Mrs. Murray and her worksite host, New Flyer, implemented a Teen Science Cafe. Students explored real-life problem solving through assembly-line scenarios.

"Thanks to the Externships and Educator Workforce Academy, I have had the opportunity to build great relationships with great industries in our region!" - K. Murray, Munford Schools

Worksite Host Planning

This section of the handbook serves as a detailed planning guide for workforce hosts participating in the STEP. It outlines crucial considerations that hosts need to address to ensure a successful and productive externship. By following this guide, worksite hosts will be equipped to offer a meaningful and enriching externship that supports both their operational goals and the professional development of the teacher externs.

Role and Expectations

Host sites are expected to designate a point of contact to guide the teacher extern throughout their experience. This involves providing opportunities for the teacher to engage in informational interviews, observe employees, and gather materials that illuminate career opportunities, organizational dynamics, hiring trends, and the skills required in the industry. Hosts should also facilitate tasks that enhance the teacher's understanding and abilities related to their teaching subjects. Additionally, collaboration is encouraged to develop a classroom or school activity with the teacher extern for implementation in the next academic year.

Hosts must also ensure that teacher externs are informed about all relevant safety precautions and regulations according to federal and state laws or organizational policies. Finally, completing an evaluation of the externship program is crucial to help refine and improve the experience for future participants.

Externship Duration

- The Externship experience will be for 3 full business days, the worksite host will select one of the set of dates below to host the extern(s)
 - Dates for externships
 - o Session 1 -June 17th-19th
 - Session 2 -June 24th-26th
 - o Session 3 -July 8th-10th
 - Session 4 –July 15th –17th

Preparation for Externship

After committing to serve as a worksite host, your organization will receive and complete a *Worksite Host Application*. This will be used to develop the profile that will be used to match worksite host with teacher extern applicants. The profile will include:

- Organizational information (industry, description, location, etc)
- Contact information for staff that will be coordinating the externship
- Dates that you have selected to host the teacher extern(s)

After completing your profile, the AL STEM Council will work with you to finalize the following items:

- Submit an externship workplan (agenda/schedule of activities and tasks)
- Extern(s) orientation: prior to the externship experience, schedule a virtual orientation meeting with your extern(s), this meeting should include:
- Worksite staff/teacher extern introductions
- Review of any rules/regulations specific to your organizations (safety/security/attire/background checks)
- Review of the externship workplan
- Review of worksite site host and extern expectations
- Sharing any onboarding documentation that you require with the teacher extern (s)

During the Externship

- Impart knowledge of career opportunities, organizational issues, hiring trends and skills required for work in the industry
- Give the teacher the opportunity to make observations and perform tasks that will enhance understanding and skills in specific areas related to their teaching
- Plan experiences to help teacher's encounter the Science/Engineering and Math Practices at your organization (see
- Plan a classroom/school activity with teacher extern to implement during the next school year
- Sign off on teacher extern(s) timesheetS

Evaluation and Feedback

To gauge the impact of this program, and make improvements, you will be asked to participate the following evaluation activities:

- Complete a pre-externship survey at the start of the Externship.
- Complete a post-externship survey at the conclusion of the Externship.
- Participate in a post-externship feedback interview to further assess the externship impact and experiences (via Zoom)

Future Engagement

• Implement the classroom/school activity that you planned with your teacher extern(s) to implement during the next school year

Contact and Coordination

You can contact the Alabama STEM Council Operations Team for support at <u>externships@alabamastemcouncil.org</u> or (205) 420-1963

Teacher Roles and Expectations

The STEM Teacher Externship Program provides a unique professional development opportunity by allowing teachers to engage in activities in business and industry, and/or service-based organizations, to learn how classroom content and learning strategies are applied in the workplace.

Teachers who participate in the externship program receive a daily stipend and professional development credits. The Alabama STEM Council coordinates the stipend process and awarding of the professional development credits (in partnership with the Alabama Regional In-service Center).

Teacher Extern agrees to:

- Attend orientation meeting(s) with the organizing entity and/or externship host
- Pay special attention to the types of competencies listed in the attached "Mathematics Practices" and "Science and Engineering Practices"
- Maintain a reflective journal/notes during the externship
- Develop at least one lesson plan based on the externship using the standards for your subject matter (CTE or STEM Content Standards)
- Plan a classroom/school activity with extern host to implement during the next school year
- Complete an evaluation survey of the externship experience
- Follow rules and regulations of your externship facilitator and host
- Be punctual and properly dressed
- Notify the organizing entity of any problems that arise out of the externship

Guiding Questions

The teacher externs will be reflecting on these Guiding Questions to help capture key insights and translate them into meaningful classroom experiences. As a worksite host, you can help your extern discover the answer to these questions during their externship experience with your organization.

Guiding Questions:

Before Your Externship:

- How might this experience connect to preparing students for Alabama's growing workforce needs?
- What regional STEM career opportunities could this help introduce to your students?

During Your Externship:

- What real-world applications of STEM are you observing?
- What specific skills are most valued in this Alabama workplace?
- What entry-level to advanced career pathways exist in this field?
- What certifications or credentials are valued by this employer?
- How does this workplace engage with our local community?
- What opportunities exist for work-based learning or apprenticeships?

Focus on Alabama Workforce Needs:

- What skills are they seeking in future employees?
- What training programs or partnerships exist with local schools?
- How can educators better prepare students for careers in this field?

After Your Externship:

- How can you translate this experience into classroom activities?
- What real-world examples will make your lessons more relevant to Alabama students?
- How can you help students understand the career opportunities in our region?
- What resources or partnerships could support your STEM instruction?

Resources

The following documents are designed to assist you in planning and implementing a successful externship experience at your company or organization. These resources include key materials that will guide the externship process and help structure meaningful learning experiences.

Sample Externship Work Plans/Agendas

These sample work plans provide examples of tasks, activities, and experiences that may take place during the externship. Use these as a template to develop your own customized externship schedule.

Science and Engineering Practices

Teachers will be required to observe and reflect on the integration of Science/Engineering and Math Practices throughout the externship. A summary of how these practices are utilized in the workplace can help inform and guide the development of hands-on activities at your worksite.

Mathematical Practices

This section highlights the role of mathematics in real-world applications. The document provides insights into how math skills are applied in the workforce, which may influence the activities and experiences planned for the externship.

Photo/Video Release Form

This form grants the AL STEM Council permission to use photos and videos taken during the externship for promotional and educational purposes. By signing, participants agree to the use of their images for such purposes.

These documents will help ensure a smooth, engaging, and educational externship experience for both participants and mentors.

Sample Externship/Work Plan Agendas

Sample #1 – 3-Day Externship Work Plan for CTE/STEM Teachers at an Energy Company

Overall Goal: To provide CTE/STEM teachers with firsthand experience in a manufacturing environment, fostering understanding of industry trends, skills needed, and potential career pathways for students.

Target Audience: CTE/STEM Teachers (Specify disciplines if applicable, e.g., Engineering, Manufacturing, IT)

Location: [Manufacturer Name] - [Location(s) within facility]

Daily Structure: Each day will include a mix of presentations, facility tours, hands-on activities (where possible), and Q&A sessions.

Day 1: Introduction to [Manufacturer Name] and Manufacturing Processes

8:00 - 8:30 AM: Registration & Welcome Breakfast/Networking

8:30 - 9:00 AM: Welcome and Introductions - Overview of [Manufacturer Name], its mission, and its role in the industry. Introduce key personnel the teachers will interact with.

9:00 - 10:00 AM: Company Overview & Safety Training - Presentation on the company's history, products, and commitment to safety. Essential safety procedures for the facility tour.

10:00 - 11:30 AM: Facility Tour - Guided tour of the manufacturing floor, highlighting key processes, equipment, and technologies. Explain the flow of materials and the different stages of production. Point out examples of STEM principles in action (e.g., mechanics, automation, chemistry, etc.).

11:30 AM - 12:30 PM: Lunch & Networking - Opportunity for teachers to interact with engineers, technicians, and other staff.

12:30 - 2:00 PM: Introduction to Manufacturing Processes - Deep dive into specific manufacturing processes used at the facility (e.g., machining, welding, assembly, 3D printing). Explain the underlying STEM principles involved.

2:00 - 3:30 PM: Quality Control and Testing - Discussion and demonstration of quality control procedures, including testing methods and data analysis. Highlight the importance of precision and accuracy.

3:30 - 4:00 PM: Q&A and Wrap-up - Open forum for teachers to ask questions about the day's activities. Brief overview of the next day's agenda.

Day 2: STEM Applications and Career Pathways

8:00 - 8:30 AM: Breakfast & Informal Discussion - Opportunity for teachers to discuss their observations from Day 1.

8:30 - 10:00 AM: STEM in Action at [Manufacturer Name] - Observe/shadow engineers and technicians showcasing how STEM principles are applied in their daily work. Focus on problem-solving and innovation.

10:00 - 11:30 AM: Career Pathways in Manufacturing - Discussion with employees from various departments (engineering, production, maintenance, etc.) about their career paths, required skills, and educational backgrounds. Emphasize the diversity of roles and opportunities.

11:30 AM - 12:30 PM: Lunch & Networking

12:30 - 2:00 PM: Hands-on Activity/Workshop - Engage teachers in a hands-on activity related to a manufacturing process or a specific product. This could involve design, prototyping, or problem-solving.

2:00 - 3:30 PM: Curriculum Connections - Workshop focused on how teachers can integrate their externship experience into their curriculum. Brainstorming session to develop lesson plans and classroom activities.

3:30 - 4:00 PM: Q&A and Wrap-up - Review of the day's activities and discussion of potential follow-up collaborations.

Day 3: Industry-Education Partnerships and Future Directions

8:00 - 8:30 AM: Breakfast & Informal Discussion

8:30 - 9:30 AM: Hands-on Activity/Workshop and/or job shadowing

9:30 - 11:00 AM: Industry-Education Partnerships - Brainstorming session on how schools and manufacturers can collaborate to enhance STEM education. Discussion of potential internships, mentorship programs, and classroom visits.

11:00 AM - 12:00 PM: Developing Action Plans - Teachers work in small groups to develop action plans for implementing what they learned during the externship in their classrooms.

12:00 - 1:00 PM: Lunch & Presentations - Each group presents their action plan.

1:00 - 2:00 PM: Feedback and Evaluation - Collect feedback from teachers on the externship program. Discuss future program opportunities.

2:00 - 2:30 PM: Closing Remarks and Certificate Presentation - Thank you and distribution of certificates of completion.

Sample #2 - 3-Day Externship Work Plan for CTE/STEM Teachers at a Manufacturing Company

Theme: Exploring the Future of Energy: Innovation, Sustainability, and Career Pathways **Target Audience:** CTE/STEM Teachers

Overall Goal: To provide teachers with firsthand experience in the energy industry, fostering connections between classroom learning and real-world applications, and inspiring them to integrate energy-related concepts into their curriculum.

Day 1: Introduction to the Energy Landscape & Company Operations

8:00 AM - 8:30 AM: Registration & Welcome Breakfast: Networking opportunity with company representatives and fellow teachers.

8:30 AM - 9:00 AM Welcome & Company Overview: Introduction to the company's mission, values, history, and its role within the energy sector. Highlighting the importance of STEM education in the energy industry.

9:00 AM - 10:00 AM The Energy Landscape: A presentation covering the current energy landscape, including traditional energy sources, renewable energy, emerging technologies, and the challenges and opportunities facing the industry.

10:00 AM - 11:00 AM Company Operations & Departments: Overview of the company's specific operations (e.g., generation, transmission, distribution, customer service), and introduction to various departments and career paths within the company.

11:00 AM - 12:00 PM Site Tour (Option 1): Visit a relevant company facility (e.g., power plant, control center, renewable energy site). Focus on the technology, processes, and safety protocols involved.

12:00 PM - 1:00 PM Lunch & Networking: Opportunity for teachers to interact with company employees from different departments.

1:00 PM - 2:00 PM Safety & Environmental Stewardship: Presentation on the company's commitment to safety and environmental responsibility, including relevant regulations and best practices.

2:00 PM - 3:00 PM Technology & Innovation in Energy: Explore cutting-edge technologies being developed and implemented in the energy sector, such as smart grids, energy storage, and advanced materials.

3:00 PM - 4:00 PM Q&A and Day 1 Wrap-up: Open forum for teachers to ask questions and discuss key takeaways from the day.

Day 2: Deep Dive into Specific Energy Areas & Career Pathways

8:30 AM - 9:00 AM Coffee & Recap of Day 1: Brief review of the previous day's topics.

9:00 AM - 10:30 AM Renewable Energy Focus: In-depth session on a specific renewable energy source relevant to the company (e.g., solar, wind, hydro). Include discussion of the technology, challenges, and potential.

10:30 AM - 12:00 PM Site Tour (Option 2): Visit a different company facility, potentially related to the renewable energy topic from the morning session.

12:00 PM - 1:00 PM Lunch & Networking with Engineers/Technicians: Teachers interact with professionals in relevant roles.

1:00 PM - 2:30 PM Career Pathways in Energy: Presentation and panel discussion featuring employees from various backgrounds and roles, highlighting career opportunities in the energy sector and the required skills and education.

2:30 PM - 4:00 PM Curriculum Connections Workshop: Interactive session where teachers brainstorm and develop ideas for integrating energy-related concepts into their existing curriculum. Company representatives can provide resources and support.

Day 3: Sustainability, Future of Energy, and Action Planning

8:30 AM - 9:00 AM Coffee & Recap of Day 2: Brief review of the previous day's topics.

9:00 AM - 10:30 AM Sustainability in Energy: Discussion on the importance of sustainability in the energy sector, including topics like energy efficiency, carbon reduction, and circular economy principles.

10:30 AM - 12:00 PM The Future of Energy: Interactive session exploring future trends in the energy industry, such as decarbonization, electrification, and the role of emerging technologies. Consider future workforce needs.

12:00 PM - 1:00 PM Lunch & Networking: Final networking opportunity.

1:00 PM - 2:30 PM Action Planning & Resource Sharing: Teachers develop individual lesson plans for implementing what they learned during the externship. Company representatives share relevant resources and materials.

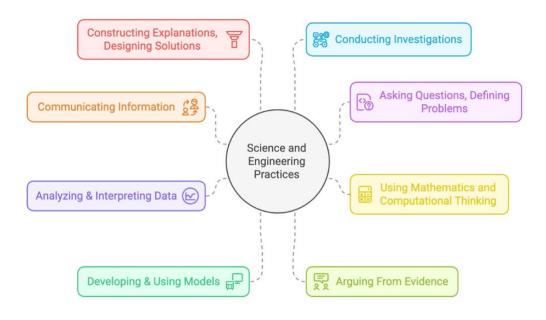
2:30 PM - 3:30 PM Teacher Presentations & Feedback: Teachers share key takeaways and action plans. Company representatives provide feedback and suggestions.

3:30 PM - 4:00 PM Wrap-up, Evaluation & Certificates: Final remarks, collection of feedback on the externship, and distribution of certificates of participation.

Note: This is a sample agenda and can be customized based on the specific focus and resources of the energy company. Flexibility is important to accommodate site availability and teacher interests. Consider offering optional pre- or post-externship activities, such as online resources or follow-up webinars.

Science and Engineering Practices

Adapted from the Alabama Course of Study-Science (2019)

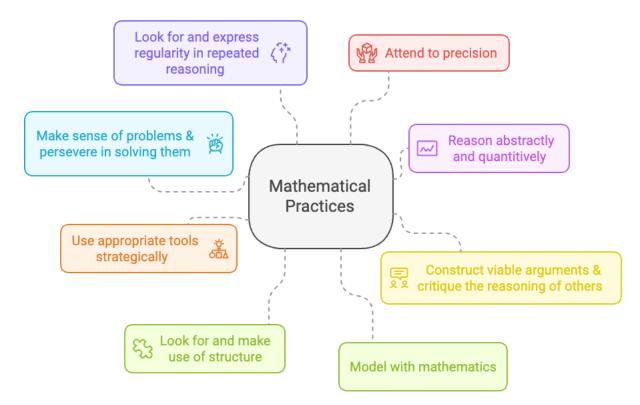


Summary of How These Practices Are Used in the Workforce:

- 1. **Communicating Information**: Scientists, engineers, and researchers need to clearly communicate their findings, whether to colleagues, stakeholders, or the general public, to ensure that complex information is understood and used effectively.
- Asking Questions & Defining Problems: Identifying important questions and clearly defining problems is essential for guiding investigations, research projects, and design work, helping to focus efforts and resources on solving the right issues.
- Using Mathematics and Computational Thinking: Mathematics and computational tools are essential in solving real-world problems, from engineering simulations to data analysis. Professionals use these methods to develop models, algorithms, and predictions.
- 4. **Analyzing & Interpreting Data**: Professionals in many fields need to analyze and interpret data to make informed decisions, optimize processes, and identify trends or patterns.
- 5. **Developing & Using Models**: Models (whether computational, mathematical, or physical) are used to simulate and predict outcomes. These models help to test ideas, optimize designs, and forecast potential challenges.
- 6. **Arguing From Evidence**: In any profession involving research, design, or decision-making, professionals must present and defend their conclusions using objective evidence and data. This ensures that decisions are based on facts and sound reasoning.
- Constructing Explanations & Designing Solutions: Constructing explanations for how systems work aid in designing solutions to address specific challenges. This involves a combination of theoretical knowledge and practical problem-solving.
- 8. **Conducting Investigations**: Professionals in many industries regularly conduct investigations to test hypotheses, gather data, and explore new ideas. These investigations are essential for advancing knowledge, improving products, and solving complex problems.

Mathematical Practices

Adapted from the Alabama Course of Study-Mathematics (2019)



- 1. **Make Sense of Problems & Persevere**: Professionals face challenges like bugs in code, equipment failures, or flawed designs. They must identify the root cause of issues and work through them methodically to find lasting solutions.
- 2. **Reason Abstractly & Quantitatively**: Data scientists, financial analysts, and engineers use mathematical models to understand complex problems and quantify relationships, turning abstract ideas into actionable insights.
- 3. **Construct and Critique Arguments**: In fields like engineering, architecture, and finance, professionals use logical reasoning to support decisions and solutions, and engage in discussions to ensure decisions are sound and backed by evidence.
- 4. **Model with Mathematics**: Professionals in many fields use mathematical models to simulate, predict, and optimize real-world systems. This helps them make informed decisions and minimize risks.
- 5. **Use Appropriate Tools Strategically**: Choosing the right tools—whether software, machines, or analytical techniques—is essential to solve problems efficiently and with high accuracy. This practice is used in a variety of fields, including finance, engineering, and healthcare.
- 6. **Attend to Precision**: Precision is crucial in tasks like surgery, product manufacturing, or scientific research. Ensuring every detail is correct is necessary to achieve the desired outcomes and avoid costly or dangerous errors.
- Look for and Make Use of Structure: Professionals in fields such as construction and programming use established structures to guide their work, optimizing processes and ensuring reliable results based on previous successes.
- 8. Look for and Express Regularity in Repeated Reasoning: By identifying patterns or regularities in data, systems, or processes, professionals can streamline operations, prevent mistakes, and predict outcomes in areas such as manufacturing, quality control, and research.

Photo/Video Release Form

I, ______, hereby grant the Alabama STEM Council, its representatives, and assigns, the irrevocable and unrestricted right to use and publish photographs and/or video recordings taken during the *STEM Teacher Externship Program* at the organization/company listed below. This includes use in all of its publications, including website entries, social media, and other promotional materials, in any manner and medium.

I hereby release the Alabama STEM Council and its legal representatives from all claims and liability relating to said photographs and videos. I waive any right to inspect or approve the finished product(s) and understand that no compensation will be provided for their use. By signing this release, I acknowledge that I have read and fully understand the above agreement.

Signature:	 _
Printed Name:	 _
Date:	 _

Organization/Company: _____

Contact Information Phone Number:______ Email Address:_____