

# Support Unfinished Learning in the Middle Grades With Project-Based Learning

## SREB's Middle Grades STEM Projects



As schools move to fully reopen this fall, districts are planning now to identify and address unfinished learning caused by disruptions in instruction.

The Southern Regional Education Board can help.

In less turbulent times, many educators turn to technology or classroom tools to remediate lost learning.

**SREB recommends a powerful alternative solution for the middle grades: authentic, hands-on, project-based assignments** that embed academic knowledge and skills and spark student effort and achievement in in-demand STEM (science, technology, engineering and mathematics) fields.

**SREB's Middle Grades STEM projects** were developed to build the strong foundation middle grades students need to pursue intellectually demanding academic and technical programs in high school, college and beyond. Projects introduce students to exciting, high-wage STEM careers and help them master the academic and technical skills needed to secure jobs in those fields.

### Spark Achievement and Close Learning Gaps

Whatever challenges your students faced in 2021-22, Middle Grades STEM projects can help.

2021-22 Challenges	Middle Grades STEM Solutions
Some students suffered greater learning gaps than in a typical year.	Projects prompt students to practice and master literacy and problem-solving skills as they tackle real-world issues.
Student engagement decreased during virtual instruction.	Projects give students a voice and choice in their learning and promote teamwork and communication skills.
Instruction covered mostly basic knowledge.	Projects encourage students to read, view, listen, research, write and speak about content using technical vocabulary as they follow an engineering design process.
Students didn't see relevance to what they were learning.	Projects about high-interest topics spark connections between what students learn in the classroom and real-world problems that impact our world.

# Sample Project: Reverse Engineering and Eco-Friendly Design

Students redesign a molded plastic package using foldable paper material so that a product can be shipped flat and reassembled by a consumer. In the process, students learn how to calculate the area of polygons, compare surface area and volume, and visualize 3D objects to create greener packaging solutions.



## Each Middle Grades STEM project includes:

- A career-based problem drawn from real workplace challenges
- An embedded math lesson
- Time for students to build literacy skills
- A rich, complex writing assignment and presentation of findings
- Access to SREB's literacy and math resources
- 30 days' worth of curricular material for teaching and reinforcing skills

## Embedded Literacy, Math and STEM Learning

Each Middle Grades STEM project reinforces grade-level literacy skills by requiring students to read, research and analyze challenging texts. Students explain their learning in informative and argumentative written products and an oral presentation. Teachers gain access to SREB's literacy resources, for example, which include over 50 mini-lessons on vocabulary development, reading comprehension, discussion, research, note-taking, writing for learning or publication, peer editing and feedback.

Projects specifically target a naturally occurring math concept that students need to master in order to solve the problem, drawn from the National Research Center for Career and Technical Education's research-based seven-element math lesson design.

Projects also require students to take an exploratory approach to learning about science, engineering and technology. For example, students learn about aerodynamics and wind turbine blade design by combining research and hands-on experimentation.

## Tap Recovery Plan Funds for Middle Grades STEM Projects

Districts and schools can use federal recovery plan funds to equitably address unfinished learning and get students back on track with Middle Grades STEM projects. Use these funds to:

- Purchase curriculum access to SREB's Middle Grades STEM projects and any required project equipment
- Secure initial professional development and coaching for teachers and leaders
- Build on the fully developed Middle Grades STEM projects with professional learning that helps middle grades teachers develop project-based units of study in all content areas

## Learn More

Contact [PBL@sreb.org](mailto:PBL@sreb.org) to learn more and get started with SREB's Middle Grades STEM