



## ***STEM Learning Incorporated into K-12 Recycling Education Program***

Recycling is an essential practice; it's as much about preserving the economy as it is the environment. Environmental sustainability and recycling practices in the 21<sup>st</sup> century will be driven by an ability to both generate and translate ideas into innovative recycling technologies, improved processing methods and new end market products. State leaders increasingly recognize that teaching science, technology, engineering, and mathematics (STEM) creatively develops critical thinking skills, engages students and fosters innovation. NLGA recognized this in its 2018 Resolution in Support of STEM Education and recommends a sense of urgency be adopted to accomplish exposure to an education in STEM subjects for all children. The Institute of Scrap Recycling Industries (ISRI) wholeheartedly agrees with NLGA and has stepped up in a meaningful way to make a real difference and help meet the challenge.

As the Voice of the Recycling Industry, ISRI has partnered with JASON Learning to develop K-12 recycling education curriculum with STEM learning experiences for students. Its forward-thinking design ensures that each and every discrete curriculum component—every article, video, hands-on lab, and online game that comprises the multimedia curricular experience—is aligned with state and national standards. The framework includes a network of programs influenced by experienced recycling professionals. As with the NLGA resolution, ISRI believes positive change in the quality of the industry's workforce comes from STEM education.

Students master core STEM skills utilizing the ISRI curriculum while learning how recycling is essential to building an economically and environmentally friendly future. The curriculum covers age-appropriate segments from the basics for elementary school children on sorting and collecting material, all the way up, for example, to high school level chemistry experiments to learn chemical interactions between various elements on the Periodic Table. Students must identify and distinguish recycled materials, which can involve multiple steps; but are also exposed to the business aspects of brokering and selling recycled raw products to a consuming facility such as a steel or paper mill, foundry, or plastic compounder. Throughout this journey, learners gain insights into the life cycle for each commodity (paper, metals, electronics, tires, plastics, glass, textiles) and how recycling is positioned within the supply chain of manufacturing.

A key characteristic of STEM in the lesson plans encourages students to use creative thinking skills for solutions to the recycling challenges in our communities. While mastering the series of actions it takes to transform recyclable materials into raw products for the manufacture of new goods, students develop a set of thinking, reasoning, teamwork, investigative, and creative skills that can be used in all areas of their lives. For student innovators seeking solutions to real-world problems, the ISRI curriculum provides opportunity to acquire a unique perspective and understanding that will encourage forward thinking design and development which will assist local

communities transition into solutions utilizing future recycling technology, operations and markets.

Business partners can accelerate the progression of STEM talent development by collaborating with educators, policymakers and students to improve strategies in STEM learning. The ISRI curriculum launched in 2015 to great success in the Staten Island, NY schools. There, with the encouragement of Borough President James Oddo and the support of New York City Departments of Education and Sanitation, more than 100 teachers and thousands of students have learned about recycling through this private-public partnership which has increased recycling and STEM learning in K-12 Staten Island schools. In this light, ISRI's role as a Chairman's Partner with NLGA is an ideal way state Lieutenant Governors can introduce positive environmental STEM education into public schools with little fiscal impact on education budgets. ISRI offers the curriculum free of charge to schools, with training for teachers often made available free-of-charge through sponsorships from local ISRI-members within the school's community.

JASON Learning offers ISRI's recycling curriculum within both their public and private platform allowing anyone to participate and take advantage of ISRI curriculum. NLGA members are encouraged to contact ISRI to take advantage of this program. Over the past five years, JASON Learning has reached more than 4,000 teachers representing over 750,000 students. With this partnership, ISRI is committed to investing in America's youths, communities, education, and the long-term survivability of the recycling industry. For more information, visit <https://jason.org/isri/> or contact Danielle Waterfield at [DWaterfield@ISRI.org](mailto:DWaterfield@ISRI.org) or 202-714-3295.