

THE FUTURE OF FUTURE CITY: A STEM PROGRAM

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Abstract

The idea of integrating science, technology, engineering, and mathematics (STEM) is still an enigma for many educators (Dare et al, 2021). Recent academic standards favor curricula that interweave the principles of integrated STEM into all content areas. Finding a “one size fits all” curriculum is challenging, perhaps even impossible. Future City is a national program that specializes in hands-on cross-curricular STEM education. Students work collaboratively using an engineering and design process to showcase their solutions to citywide sustainability issues. This research brief examines how educators can utilize the Future City program as the cornerstone of their STEM curriculum.

Middle School and STEM Education

STEM fosters critical thinking skills in students to help them become better problem solvers (White, 2014). The goal behind this was to make students more marketable in the workforce and to give them an edge with post-secondary plans. To help prepare students for these roles, schools have been using STEM curricula in their classrooms. The ability of educators to teach STEM curriculum with fidelity can be a challenge when it comes to STEM education. Many teachers are influenced by common misconceptions like negative beliefs about student abilities, integrating non-traditional beliefs about teaching, and even lack of content knowledge (Holstein, 2013). School budgets are also a hurdle in finding a STEM curriculum which is where Future City begins to shine as it is free to low cost.

Future City - More Solutions, Less Problems

Future City is a dedicated STEM program that promotes 21st century skills. Students in grades 6-8 work collaboratively to develop innovative and technological solutions to modern problems by looking to the future. The educator’s handbook acts as a roadmap for teachers which allows for as much or as little differentiation needed. Through research, writing, designing, and building, students are actively engaged in developing problem-solving and critical thinking skills, as well as the ability to collaborate. In 2020, the Concord Evaluation Group reported 80% out of 1,560 students, agreed that participating in Future City positively impacted their abilities to work in a team, solve problems, and use math and engineering to solve real-world problems (Paulsen, 2020). Along with those skills, many state and national standards are also taught. While the essentials stay the same, Future City offers a yearly new theme for teams to explore. Each theme pushes students to look through the lens of their communities and how they would solve these issues at home. In this student-led curriculum, teams write an essay, build a 3D model showcasing their city solutions and creative abilities, and put together a presentation. This type of curriculum allows for deep dives into all aspects of STEM and how it applies to real-life problems. A staggering 85% of students who participate, want to keep participating in engineering activities while 68% say they can see themselves becoming engineers.

References

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