

The Brightside of Energy Consumption

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Overview

In this unit, students learned how to become advocates for themselves and their communities while learning about the various types of energy that we use to power our society. In the process, students learned about the consequences of energy production as well as the implications that this has on their everyday lives, especially as students from a low income, Title I school. This unit focused on incorporating STEAM (Science, Technology, Engineering, Art, and Math) education into an 8th grade science classroom to inspire students to think critically about solutions to the energy and environmental crises that are occurring in the United States and around the world. Students were encouraged to focus on cleaner, alternative energy sources, such as solar energy and other sources derived from light.

Goals

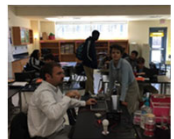
1. Develop leadership and advocacy skills among students
2. Expose students to the concept of environmental justice and its impact on their community
3. Allow students to engage with STEAM (Science, Technology, Engineering, Art, and Math) concepts and discover careers in the field
4. Provide opportunities for group work
5. Place students in roles, such as politician, lobbyist, and city designer, where they must use their knowledge to think critically to develop system-wide solutions
6. Challenge students to combine aspects of art and science to create energy efficient houses

Results

- 80% of students achieved mastery and near mastery on the unit test
- English Language Learners and Exceptional Children engaged in meaningful group work
- High flyers assumed leadership roles within their groups and facilitated the learning of their peers
- All students incorporated literacy in science by structuring an argumentative essay and delivering the points through debate
- 8 solar-powered houses were designed and created by students
- Students learned about 7 STEAM careers (salary, education, daily tasks) in the energy sector

Unit Components

- Student-Led Research
 - Students became lobbyists for the various renewable and nonrenewable energy sources
 - Students conducted research about their energy source and taught their classmates about the advantages and disadvantages
- Town Hall Debate
 - Student groups engaged in a structured debate about which energy sources, renewable or nonrenewable, should be utilized by North Carolina
- Advocacy and Outreach
 - An electrical engineer from Duke energy came to speak about the various energy sources used in North Carolina
 - Students wrote letters to local politicians and leaders within Duke Energy to advocate for increased renewable usage
- Energy Efficient House Project
 - Students conducted research on energy efficiency techniques
 - Students designed and created houses using recycled materials
 - Students used mini solar panels and LEDs to light up their houses



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