

Energy Squad

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Overview: Students take on the role of the “Energy Squad” to help their school become more energy efficient and sustainable. In this lesson students can learn about carbon emissions and the carbon footprint of their school while engaging in research, writing, discussion, activism and inquiry. This activity can be integrated across the curriculum using standards in Math, Science and ELA.

Targeted Grade 5

The CT Green LEAF Schools program includes a School Self-Assessment. This can be completed by the school’s Green Team. That team can certainly involve students in the assessment. The areas covered include what is taught, programs and efforts supporting the health and wellness of students and staff in the buildings, and looking at the resources (energy, waste, water, recycling) that are used in the school. How we teach about those wellness and resources areas is also included. For more about CT Green LEAF go to www.ctgreenleaf.org. You will find the self-assessment document at <http://www1.easternct.edu/sustainenergy/qls-documents/>

Below is one suggested approach to including students in the self-assessment.

Standards

NGSS Standard(s)	CT Social Studies Standards
5-ESS3-1 Ways communities use science to protect Earth’s resources.	HIST 5.9 Cause and effects of events ECO 5.1 Incentives influence on decisions
Common Core Math Standard(s)	Common Core ELA Standard(s)
5.NF.6 Solve real world problems	W.5.1-6 Text Types and Purposes SL.5. 4-6 Reporting on a topic in a variety of ways

Standards-Based Curricular Connections: **Energy Squad** can support your curricular goals in many ways including, but not limited to, the example below.

5-ESS3-1. Obtain and combine information about ways that individual communities use science ideas to protect the Earth’s resources and environment.



- Students can take on the role of energy squad for the school. Students help perform a school energy audit in partnership with a local utility company before designing a plan to reduce the school’s energy consumption or carbon footprint by offsetting their usage. Once they have seen a reduction in their usage, they may write opinion pieces to the school district to try to reduce the district’s energy usage.(W.5.1)
- One resource to complete this audit is the “Conducting a Classroom Energy Audit” found at www.ctenergyeducation.com . This lesson includes worksheets and supporting materials.
 - **Science & Engineering Practices:** Asking questions (for science) and defining problems (for engineering); Constructing explanations (for science) and designing solutions (for engineering); Using mathematics and computational thinking; Engaging in argument from evidence; Analyzing and interpreting data; Obtaining, evaluating, and communicating information
 - **Crosscutting Concepts:** Cause and effect; Energy and matter; Stability and Change; Patterns

Other Potential Connections:

Science – students investigate the greenhouse effect through labs and research.

Engineering- engineers often try to reduce the carbon usage of structures they design. By designing buildings that use less heating and cooling or do not require as much electrical lighting, civil engineers can reduce the carbon footprints of buildings. Environmental engineers evaluate the effects of greenhouse gas emissions and suggest guidelines for other engineers to follow when designing new buildings. Use these ideas to launch and design student plans to reduce the school’s carbon footprint.

Math – students may practice ratios, proportions, measurements and calculations when developing ways to reduce your school’s energy usage and carbon footprint. Chart and graph data collected over time from your school’s carbon emissions; calculate carbon footprints. Another resource for this is the “Ecological Footprint Lesson” with its many extensions, found at www.ctenergyeducation.com

ELA –This activity lends itself to students raising their voices—in school, or in the community. Have students create change through independent projects that address and influence helping the ozone layer and reducing the school or district’s carbon footprint. (5.SL 4-6).

Social studies/Geography - students may view ozone reports all over the world to find areas of high ozone levels and/or high levels of carbon emissions. They may then research the history of that area and attempt to theorize what causes the high levels in



that particular region. Communicate via Skype with farmers and/or schools in other countries trying to reforest the tropics to offset carbon emissions. Students may explore how incentives influence decisions people make and how they may apply this in their own school. (HIST 5.9) (ECO 5.1) Learn about the Air Quality near your school. Join the Connecticut Air Quality Flag Program and monitor your ozone and particulate levels. Learn more at <http://www1.easternct.edu/sustainenergy/gls-h-w>

Engagement and Community Involvement: Some of the most meaningful learning activities are ones that allow for community and parental involvement. **Energy Squad** may be used to promote community engagement in the following ways:

- Home Connection - Persuasive letters to local companies to reduce their carbon footprints.
- Request a classroom speaker from Department of Environmental Protection or other similar agencies.
- Engage in conversations with your local Utility Company.
- Planting trees or plants to help offset carbon emissions.

Resources for Awareness to Action

- [CT Green LEAF Schools](#)
- EPA's [A Student's Guide to Global Climate Change](#)
- [Energy Star Kids](#)
- PBS resource [Carbon "Kidprint" Calculator](#)
- A local carbon sequestration project, involving students [Reforest the Tropics](#)
- From a Brunei international school [Carbon Footprint Teaching Resources](#)

These suggestions are examples only, and may require adaptation. Check your grade-specific standards to determine whether or not the suggestions provided meet your individual curricular needs.

For more information, contact ctgreenleaf@ctgreenschools.org

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