Saint John's Outdoor University Field Trip Overview

Solar Energy

Objective: Saint John's Abbey's Solar Farm will be the backdrop while students investigate the costs and benefits of generating electricity from renewable and non-renewable sources. Students will be challenged to think about why they should care where their electricity comes from and how their actions can affect the world's energy needs. Students will learn what it means to be a 'full cycle thinker' and how they can apply that type of thinking to any difficult choices they make.

Field Activities:
Solar Field Tour: Students will observe the solar panels up close and learn how the sun generates the energy that powers our world. Students will also learn the details of solar energy production, from development and installation to maintenance and repair.
***Energy Forms*:** Students will learn through active demonstration the different types of energy and the difference between energy and electricity.
Electron Excitement: Students will participate in an interactive game that demonstrates how photons from the sun excite electrons in the solar panels to create electricity. The game includes the concepts of a circuit and solar panel efficiency.
Full Cycle Thinking: Students will examine the costs and benefits of renewable and non-renewable sources of electricity and discuss what should be considered when making decisions that involve numerous details, options, benefits, and costs.

Key points and themes covered in each class:

- While eliminating the need for electricity seems impossible, we can easily reduce our consumption of electricity – by small changes as individuals and informed decisions as a community.
- Using renewable sources of electricity, like solar power, can help decrease dependency on non-renewable sources of electricity.
- Solar technology is continuing to improve and become more efficient, proving to be an increasingly feasible source of electricity.

Minnesota K-12 Academic Standards addressed during activities:

Strand	Code	Benchmark
SCIENCE		
1. The Nature of Science and Engineering	6.1.2.1.1	Identify a common engineered system and evaluate its impact on the daily life of humans.
	6.1.2.1.3	Describe the trade-offs in using manufactured products in terms of features, performance, durability and cost.
	6.1.3.1.1	Describe a system in terms of its subsystems and parts, as well as its inputs, processes and outputs.
2. Physical Science	6.2.3.2.2	Trace the changes of energy forms, including thermal, electrical, chemical, mechanical or others as energy is used in devices.