Bridges Career Academy
Sustainability and Renewable Energy
Pillager Area Charter School

Introduction to the area of energy sustainability and conservation, climate change and renewable energy technologies. Use the scientific method to investigate current topics in the energy fields, interpret climate change data, and calculate energy usage. Hands-on projects and real-world experiences.

Academic Courses

- Renewable Energy/ Sustainability Course
- Greenhouse
- Field Studies
- English
- Mathematics
- Odysseyware Exploration

Career Experiences

- Listen to industry speakers
- Attend the Bridges Career Exploration Day or other regional career fairs
- Work in a greenhouse
- Participate in field studies

Completion Standards

COMPLETE

☑ **ALL courses**

GRADES **1.5**

Earn a **certificate** and **green cord** at graduation

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Job Skills

In addition to having technical skills, employers expect workers in this industry to have these skills:

- Written communication skills
- Ability to work with professionals
- Ability to manage materials and supplies
- Problem solving skills and decision making skills

Bridges Career Academies & Workplace Connection

www.BridgesConnection.org/PillagerCharter

Supported in part by Sourcewell (formerly NJPA)
6/2018

Sustainability and Renewable Energy Career Academy

Pillager Area Charter School

The Sustainability and Renewable Energy Academy introduces students to the area of energy sustainability and conservation, climate change and renewable energy technologies. Though greenhouse gases occur naturally, human activities have significantly increased the levels of these naturally occurring gases. Students will use the scientific method to investigate current topics in the energy fields, interpret climate change data, and calculate energy usage. Hands-on projects and real-world experiences are on integral part of this academy. For those interested in developing an understanding of the human impact, this academy is for them.

ACADEMY COURSES

Renewable Energy/Sustainability Class — 65 Hours

Our present use of natural resources and hydrocarbons are on a collision course with the environment. This course is a general overview of energy usage and contribution to global warming/climate change and possible solutions to derive energy from renewables for a sustainable future include: wind, solar, electrifying transportation, and the impact of the food sector in producing greenhouse gases. Fuel cells, various energy storages, conservation and efficiency in applications will be discussed. Energy use; air-conditioning and heat pumps, recycling and refuse-derived fuel, energy management applications, LEED certification, architectural design and urban sustainability, and net-zero energy homes will be discussed. Students will spend 30 hours in the classroom, 20 hours in the lab and have 15 hours to complete an independent project.

Greenhouse — 33 Hours

This course gives students an opportunity to explore plants propagation by planting seeds, preparing soft and hard wood cuttings, separating and divisional grafting, budding, and layering. In the greenhouse students will be developing the basic skills needed to manage their own nursery as it relates to growing plants. Students will have 5 hours of planning, 15 hours of work experience, 3 hours of field experience and 10 hours to complete a project.

Field Studies — 24 Hours

Students will explore the concepts they have learned in other courses in the natural environment. Students will visit a variety of businesses and outdoor environments that demonstrate the systems that use and misuse energy systems. Students will have 1 overnight energy trip, about 8 hours and spend 16 hours on other experiences.

English — Project Component

These course essential skills needed to gather information and use it in persuasive writing. Students will be expected to write and speak about a variety of renewable energy topics and develop a persuasive text will demonstrate their opinion related to the topic. The project must contain a persuasive writing component.

Mathematics — Project Component

There are many technologies for producing energy, such as fossil-fuel power plants, solar panels, wind turbines, and nuclear power plants. In this course students will learn such things as how to calculate as the amount of electrical energy produced and the overall energy efficiency of specific sources. The project must contain a cost or impact analysis.

Odysseyware Exploration — 24 Hours

Odysseyware' s rigorous, media-rich career and technical education courseware prepares students for the workforce and post-secondary education. In the course students will need to pick 4 units to complete in Odysseyware, under the Career and Technical Education, in the Agriculture, Food & Natural Resources cluster. Students will spend 5 hours completing 4 Odysseyware units in Agriculture, Food & Natural Resources cluster areas.

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COMPLETION STANDARD
Students wishing to receive a certification must complete all courses; earn a minimum of a 1.5 or better average score in all courses.

CAREER EXPERIENCES
Students will explore and research careers with industry speakers, and attend the Bridges Career Exploration Day event and other regional career fairs. In addition, students will work in a greenhouse, and participate in field studies.

JOB SKILLS
In addition to having technical skills, employers expect their workers to have other skills such as:

- Written communication skills
- Ability to work with professionals
- Ability to manage materials and supplies
- Problem solving skills and decision-making skills

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JOB OUTLOOK: www.careerwise.minnstate.edu/jobs
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