



Gateway: Green Architecture 8th Grade

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Reviewed by the Curriculum Advisory Committee
September 17, 2014

Approved by the Board of Education
October 21, 2014

COURSE TITLE: Gateway – Green Architecture

GRADE LEVEL: 8th Grade

CONTENT AREA: Career and Technical Education

Course Description:

Today's students have grown up in an age of "green" choices. In this unit, students learn how to apply this concept to the fields of architecture and construction by exploring dimensioning, measuring, and architectural sustainability as they design affordable housing units using Autodesk's architectural design software.

Taken from www.pltw.org

Course Rationale:

Through topics like robotics, flight and space, and DNA and crime scene analysis, middle school students engage their natural curiosity and imagination in creative problem solving. PLTW's Gateway program is a strong foundation for further STEM learning in high school and beyond, challenging students to solve real-world challenges, such as cleaning oil spills and designing sustainable housing solutions. Using the same advanced software and tools as those used by the world's leading companies, students learn how to apply math, science, technology, and engineering to their everyday lives.

Taken from www.pltw.org

Course Scope and Sequence

Unit 1: Architectural Basics (16 days)	Unit 2: introduction to Sustainable Architecture (12 days)	Unit 3: Architectural Challenge (17 days)
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Essential Terminology/Vocabulary

Unit 1: 3d modeling, architect, architectural scale, architecture, area, construction, construction details, electrical plan, electrical system, elevation plans, fixture, floor plan, foundation, foundation plan, heating and cooling systems, lavatory, mechanical plans, perimeter, plot plan, plumbing system, presentation drawing, residential construction, scale drawing, term, valley in roof, water closet, working triangle

Unit 2: air quality, architect, architecture, asbestos, biological hazards, carbon footprint, carbon monoxide, climate change, closed loop system, conservation, deforestation, diamante poem, ecosystem, environment, forest stewardship council, geothermal energy, greenhouse

effect, hydroelectric power, insulated concrete forms, lead, leed, logo, open loop system, ozone, recycling, renewable resource, rooftop garden, slogan, solar power, structural insulated panels, sustainable, vegetable garden, volatile organic compounds, wind power

Unit 3: asphalt shingles, building information modeling, bubble diagram, CAD, CAE, CFL, cripple, energy star, floor framing system, floor joists, global, gray water, header, insulation, load bearing wall, modular, non loadbearing wall, on center, r-value, recycle, reduce, reuse, roof truss, sheathing, shipping container, siding, sill, sole plate, stud, subfloor, top plate, u-factor, underlayment, vapor barrier

Approved Course Materials and Resources:

- Gateway to Engineering: Rogers, Wright, Yates, ©2010 ISBN-13: 978-1-4180-6178-4
- Project Lead the Way's *Learning Management System (LMS)*