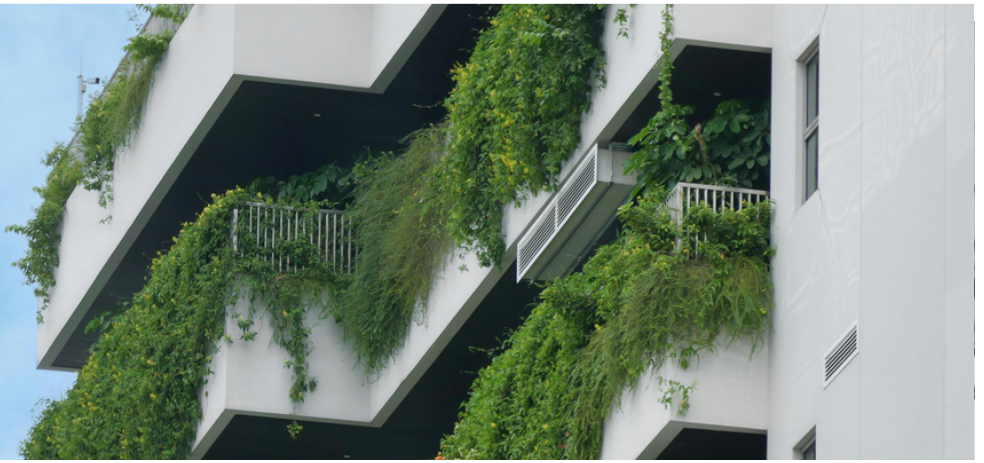


Green Building



Overview

Design a low-impact home, classroom, or building using sustainable features. Learn where buildings waste energy and how design choices can reduce environmental impact.

Learning outcomes

- Understand how homes and buildings use and waste energy.
- Identify features that make a building more energy-efficient or environmentally friendly.
- Develop creative solutions for sustainable living.
- Recognize how geography, climate, and energy sources influence building design.

Curriculum Connections

- Science: Energy, heat, electricity, materials, environmental impacts
- Geography: Climate, regional differences, geography-influenced design
- Mathematics: Measurement, scale, spatial reasoning
- Art: Drawing, design, visual communication, creative problem-solving
- Technology: Materials, engineering, sustainable design

Materials

- Paper, drawing tools or design software
- Optional: research materials or examples of green buildings

Proof to submit

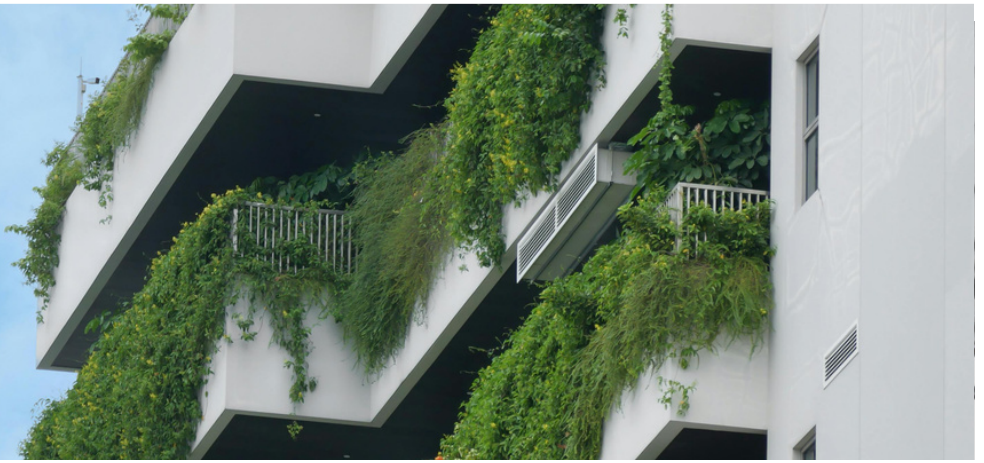
Samples of student designs (drawing, model or digital design)

Activity

Grades K to 6

Students design a “green” building, such as a home, school, or classroom, by drawing or building a simple model. The design can be as simple or detailed as appropriate for the students’ age and abilities. Students may work individually or in teams. Students can choose from the examples provided or come up with their own sustainable features. Students explain their choices and describe how each feature helps the building use less energy or water.

Green Building



Grades 7 to 12

Students design a net zero or low-impact building, which could be a home, school, or other community space. Students can research or explore examples of sustainable buildings in their community and consider how design choices reduce energy use and environmental impact. Individually or in teams, students sketch their building, highlight green features such as insulation, natural light, solar panels, or green roofs, and explain how these features improve energy efficiency. Students are also encouraged to consider how sustainable building designs might differ across Canada depending on climate or regional energy sources, such as northern insulation needs or provinces with abundant renewable energy.

Resources for teachers

Visit the [Live Net Zero Classroom Challenge website](#) for additional resources and information.

Key terms

Net zero means the building produces as much energy as it uses over a year, often through renewable sources like solar panels or wind.

Low-impact means the building uses less energy, water, and materials compared with typical buildings.

Ideas for Sustainable Building Features

Students could consider features such as:

- Solar panels
- High-quality insulation
- Energy-efficient windows
- Natural lighting
- Rainwater collection
- Green roofs
- Energy-efficient appliances
- Heat pumps
- Water-saving fixtures
- Native plants or green spaces