

Building Green

Part of the *Green Careers* series

Study Guide

Appropriate for grades 9-12 and post-secondary,
as well as 7-8 with teacher guidance.



This program presents an overview of job opportunities in this booming industry where there is a high demand for trained professionals, designers, and workers to help improve the efficiency of commercial and residential buildings through better design of new buildings and smart improvements to existing structures.

Making our homes and offices more energy efficient is an enormous challenge, but the potential cost savings and benefits for the environment are significant. Government mandates, tax credits, and rebates are adding additional incentives. A job in a “green” construction trade can enable a young person, with a minimal amount of training, to get a foot in the door of the green economy.

Jobs profiled in this program include:

Solar Installer, Lighting Technician, Energy Auditor. Also interviewed are Stephanie Stone and Dr. Frank Alameda of the California Academy of Sciences, who discuss some of the key innovations in green buildings developed by architects and engineers.

20 minutes



**The Phoenix
Learning Group, Inc.**

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Learning Objectives

Following are some sample cross-curricular learning objectives for comprehension questions and activities. Students will be able to:

Science

- Determine the positive and negative effects green building has on the environment.
- Describe the types of structures that can accommodate solar panels.
- Design green structures that are adapted to local settings and use local materials.

Careers/guidance

- Evaluate personal interests to determine if green careers are an area in which to pursue further education.
- Compare and contrast the skills and education required for a variety of green careers.
- Identify post-secondary programs that offer green careers and locate courses of study within the programs.
- Determine the appropriate high school courses to enroll in to prepare for a chosen green career.
- Predict the demand for green careers in the future, and develop a plan to experience and prepare for one of these careers, prior to attending trade school or college.
- Elaborate on the importance of cooperative, interdisciplinary work in conjunction with green building.
- Define “entry-level position” and apply the definition to green building positions.

Technology

- Conduct research utilizing a computer and the Internet.
- Evaluate the technological advances in green building and the impact this progression will have on society.

Language Arts Literacy

- Write and conduct interviews to acquire knowledge regarding green careers.
- Create an advertising campaign to inform others about green careers and the developing need for skilled workers.

Questions

Solar Installer

1. Identify the requirements needed to acquire a position as a solar installer and determine if you meet the criteria.
2. Consider and discuss at least two benefits of being an apprentice solar installer.
3. Examine the architecture of the buildings that are being equipped with solar energy panels. How does this architecture differ from what you would expect from a “solar home?”
4. Why is solar power the future and how will the job markets have to adjust to meet future energy needs?

Lighting Technician

1. Define retrofitting.
2. Elaborate on the statement, “As the cost of energy increases, the greater the need for lighting retrofitters.”
3. How is the job market for lighting technicians impacted when energy companies offer incentives to retrofit older systems in businesses, schools, and residences?
4. Compare the responsibilities of a lighting technician to those of a full-fledged electrician.
5. Why is the position of lighting technician considered a good entry-level position?

Energy Auditor

1. What information do these students present to community members?
2. How do you think they are received by adults when they act as educators in the quest to conserve energy? Is this something you can do with confidence?
3. Define non-profit organization.
4. List careers associated with energy auditors.

Buildings of the Future

1. What types of natural materials were used and how many workers from other green careers were needed to produce the materials.
2. List the different green jobs observed and discussed in the video clips, and how interdisciplinary and cooperative work is essential for the successful functioning of the structure (ex: faucets with turbines – would a plumber or engineer design this or do both work together?).
3. Give examples of how problem-solving skills and creative thinking are used in building green (for example, the living roof).
4. Why is sustainability a key factor in green building?

Sample Activities

- Survey your school. Locate and tally all light bulbs, including in signs, and calculate the energy savings if all bulbs were replaced.
- Conduct interviews with builders or construction workers in your area to assess local trends in retrofitting existing homes and businesses. Use this data to determine if there is a need for more skilled green workers to keep up with the demand.
- Find out if your area has an energy auditing program and inquire about job shadowing to see if it is a personal area of interest. If your area does not have one, investigate starting one as an entry point into a green career.
- Research high school vocational programs to determine how many offer specific courses in green collar jobs, how many incorporate green collar job information into the existing curriculum, and how many schools do not address these green careers.
- Design two green buildings – one suitable for the city and another for rural areas. Explain the difference between the two and the rationale for the differences.
- Create a series of posters that can be utilized in your school advertising various entry-level green collar jobs and the requirements for each position.

Related Links

<http://www.bls.gov/audience/students.htm>

Part of the Bureau of Labor Statistics website designed for teachers and students. It includes resources such as the latest statistics on employment, prices, and wages.

<http://www.ases.org/index.php>

Home page of the American Solar Energy Society.

<http://www.usgbc.org/>

The U.S. Green Building Council home page.



The complete *Green Careers* series includes:

Building Green Clean Energy

Recycling Environmental Justice

Water Management Green Design

Sustainable Agriculture Hazardous Waste Management

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