

Who Wants To Be an Energy Millionaire?

Objective

Students will be able to answer questions about energy careers.

Curriculum Connection

Math
Science

Materials

Copies of *Who Wants To Be an Energy Millionaire?*

Key Vocabulary

accountant
electrical engineer
energy auditor
line worker
installer
mechanical engineer
mechanical technician
natural gas technician
power plant operator

STEM Connection

Science
Personal and Social
Perspectives

Introduction

Energy is a vital part of our lives and many people are needed to ensure that the electricity, natural gas and other fuels are available when we need them. Unfortunately, many of the skilled workers that keep our nation's energy supply working are nearing the age of retirement, leading to a high demand for workers in the energy field.

There are many career opportunities in the energy industry, from high tech jobs requiring advanced degrees, to those only requiring a high school diploma. Whether a person wants to work in an office or outdoors, there is an energy career to consider.

Procedure

1. Have students work in small groups to brainstorm all of the careers they can think of in the energy industry in five minutes.
2. Discuss student lists, grouping them into categories as you see fit, possibly by how much education would be required after high school or perhaps by pay scale from high to low.
3. Distribute the student sheet and have students answer the questions about careers.

Discussion

Review answers with students, giving the students the information about each career listed on the answer sheet.

Just for fun, have students determine their "salary" by finding their last correct answer beginning with question one on the student sheet. (For example, if the last correctly answered question was number nine, then their salary is \$128,000).

To Know and Do More

Have students research a job in the energy industry that sounds interesting to them. Websites that may be helpful: www.GetIntoEnergy.com and www.GreenJobs.com.

Answer Key To Student Activity Sheet

1. a. installer
An installer is responsible for transporting equipment to a job site and putting it together properly. There are many types of energy equipment that require installers, such as solar water heaters, photovoltaic panels, geothermal heat pump systems, etc. An apprentice installer may make \$33,000 a year, while a supervisor may make \$85,000 annually.
2. d. natural gas technician
A natural gas technician can start with a high school diploma. A crew assistant salary is about \$26,000 and a specialist can make \$75,000 a year with advanced training and several years of experience.
3. b. mechanical technician
A mechanical technician does many different tasks including installation of equipment, monitoring equipment performance, troubleshooting problems and repairing equipment. They average salaries from \$36,000 to \$110,000.
4. c. line worker
Line workers install and repair cables, wires and other critical transmission and distribution equipment that help power homes, businesses, hospitals, schools, etc. Salaries range from \$33,000 to \$85,000.
5. c. energy auditor
Energy auditors complete estimations and inspections for energy equipment and the construction of buildings to make them energy efficient. They prepare reports summarizing energy analysis results and recommendations for energy cost savings. Energy auditors make between \$20,000 and \$67,000 per year.
6. b. power plant operator
Power plant operators are in charge of operating and controlling the equipment that generates power in coal, nuclear, gas and other power plants. An assistant operator may earn \$30,000, while a supervisor may make \$85,000.
7. a. accountant
Some accountants are directly involved in preparing an organization's financial statements, doing payroll and paying bills. Other accountants work with a corporation's management in analyzing costs of operations, products, and special projects. Salaries range from \$32,000 to \$60,000 per year.
8. c. mechanical engineer
Mechanical engineers have extensive knowledge of machines and tools, including design, use, repair and maintenance. They oversee how machines and equipment are installed, operated, and maintained, making sure they follow specifications. Mechanical engineers also investigate why equipment fails and make recommendations to the maintenance crew. Salaries range from \$46,000 to \$120,000 per year.
9. d. electrical engineer
Electric and power engineers conduct research and apply electrical theory to engineering projects. They also do calculations to determine how electrical systems should be built, and utilize computer-assisted engineering and design software and equipment to perform engineering tasks. Electrical engineers make between \$50,000 to \$130,000.
10. c. meet a variety of needs
Energy careers require many different levels of education, skill sets and working locations to meet the needs of almost any person seeking a steady job.
11. d. all of the above
Engineers design systems while technicians maintain them. Many workers, especially engineers, average salaries over \$100,000. The energy industry worldwide is in need of skilled workers with a strong background in science, technology and mathematics.

Salaries from www.PayScale.com, accessed May 2013.

Student Activity Sheet

Who Wants To Be an Energy Millionaire?

The energy industry is a growing job market with good pay and job security. Along with a good variety of jobs, there are opportunities to work in interesting places around the world, both in and outdoors. It's estimated that by 2030 more than one-fifth of all Americans will be employed in the energy industry.

Whether your strengths are science, math or public relations, there could be a niche for you providing a valuable service to help meet our nation's ever-increasing energy needs.

Career opportunities include many types of engineers: electrical, mechanical, structural, chemical, nuclear and design engineers. Also needed are technicians: installers, energy auditors, power plant technicians and researchers. Like any other company, energy firms also require business expertise in development and administration, marketing, law, government, human resources, accounting, and organizational management.

Answer the following questions, picking the correct job to match the description. For each question you get correct, you "earn" the amount listed. Get every question right and you are an "energy millionaire" today!

- For \$1,000: A person who places energy systems on a building, such as solar panels
a. installer b. electrician c. energy auditor d. natural gas technician
- For \$2,000: A person who locates natural gas pipes in the ground and safely repairs them
a. installer b. electrician c. energy auditor d. natural gas technician
- For \$4,000: A person who inspects and maintains the machinery in a power plant
a. carpenter b. mechanical technician c. line worker d. driller
- For \$8,000: A person who installs and repairs cables and wires that carry electricity
a. carpenter b. mechanical technician c. line worker d. driller
- For \$16,000: A person who completes estimations and inspections for energy equipment and efficiency in homes, business and industry
a. installer b. electrician c. energy auditor d. natural gas technician
- For \$32,000: A person who monitors power plant equipment and regulates the flow of energy through the system
a. electrician b. power plant operator c. computer programmer d. power engineer
- For \$64,000: A person who makes sure that the employees and the bills of a company get paid
a. accountant b. computer programmer c. energy auditor d. administrative assistant
- For \$128,000: Someone who designs and operates power plants, responsible for safe and efficient operation of mechanical systems
a. environmental engineer b. electrician c. mechanical engineer d. electrical engineer
- For \$256,000: Someone who designs systems to generate and deliver electricity reliably and efficiently
a. environmental engineer b. electrician c. mechanical engineer d. electrical engineer
- For \$512,000: Jobs in energy fields
a. are decreasing b. pay poorly c. meet a variety of needs d. require many years in college
- For \$1,024,000: An energy industry worker might
a. design systems to harness geothermal energy b. make over \$100,000 a year
c. work in interesting places all over the world d. all of the above