4th Grade Career Development
Activity #15: Science, Technology, Engineering, and Mathematics Careers
Estimated time: 30-45 minutes

National Career Development Guidelines Indicators
ED1 - Attain educational achievement and performance levels needed to reach your personal and career goals
  • ED1.K7 - Recognize that your educational achievement and performance can lead to many workplace options
  • ED1.K8 - Recognize that the ability to acquire and use information contributes to educational achievement and performance
ED2 - Participate in ongoing, lifelong learning experiences to enhance your ability to function effectively in a diverse and changing economy
  • ED2.K3 - Recognize the importance of being an independent learner and taking responsibility for your learning
CM3 - Use accurate, current, and unbiased career information during career planning and management
  • CM3.K2 - Recognize that career information includes occupational, education and training, employment, and economic information and that there is a range of career information resources available
  • CM3.K4 - Identify several ways to classify occupations
CM4 - Master academic, occupational, and general employability skills in order to obtain, create, maintain, and/or advance your employment
  • CM4.K4 - Recognize that many skills are transferable from one occupation to another

Goal:
Students will investigate careers in the Science, Technology, Engineering, and Mathematics Career Cluster.

Objectives:
• Understand that a career cluster is a grouping of occupations and broad industries based on commonalities
• Recognize that the Science, Technology, Engineering, and Mathematics Career Cluster includes careers in science, technology, and math to design, build or operate equipment, structures and systems
• Investigate careers in the Science, Technology, Engineering, and Mathematics Career Cluster

Materials:
• 4th Grade Career Development Activity – Science, Technology, Engineering, and Technology Careers: All About Engineers handout #1
• 4th Grade Career Development Activity – Science, Technology, Engineering, and Technology Careers: Engineer Word Search handout #2
• 4th Grade Career Development Activity – Science, Technology, Engineering, and Technology Careers: Engineer Word Search answer sheet
• Writing materials
Activity:

1. “Today we’re going to learn about occupations in the Science, Technology, Engineering, and Mathematics Career Cluster. Does everyone remember what a Career Cluster is? A career cluster is a grouping of occupations and industries based on things they have in common.”

2. “The Science, Technology, Engineering, and Mathematics Career Cluster includes jobs that apply scientific, mathematic, and technologic knowledge to design, build, and operate equipment, structures, and systems.” Write this on the board. “There are many occupations that fall under the STEM umbrella, but today we are going to talk about engineers. Engineers are people who apply scientific knowledge to solve practical problems. Let’s look at different types of engineers”

3. Distribute the Science, Technology, Engineering, and Technology Careers: All About Engineers handout. Go over the occupation to ensure students understand each of the different types of engineers. “Which one of these engineers sounds most interesting to you?” Allow the class to discuss the question.

4. Distribute the Science, Technology, Engineering, and Technology Careers: Engineer Word Search handout. Explain the directions and ensure that students understand them. Walk around the room to answer questions and offer any help needed. Allow enough time for all students to complete the assignment.

5. Once students have completed their assignment, go over the answers and collect their handouts.

Evaluation:
Students will be evaluated on their handouts.
Science, Technology, Engineering, and Mathematics Career: All About Engineers

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Aerospace Engineers design, construct, and test aircraft, missiles, and spacecraft.

Chemical Engineers design chemical plant equipment and devise processes for manufacturing chemicals and products, such as gasoline, synthetic rubber, plastics, detergents, cement, paper, and pulp, by applying principles and technology of chemistry, physics, and engineering.

Civil Engineers plan, design and oversee construction and maintenance of building structures, and facilities, such as roads, railroads, airports, bridges, harbors, channels, dams, irrigation projects, pipelines, power plants, water and sewage systems, and waste disposal units.

Electrical Engineers design, develop, test, and supervise the manufacturing and installation of electrical equipment, components, or systems for commercial, industrial, military, or scientific use.

Environmental Engineers design and plan for the prevention, control, and cleanup of environmental health hazards.

Marine Engineers design, develop, and take responsibility for the installation of ship machinery and related equipment including propulsion machines and power supply systems.

Materials Engineers evaluate materials and develop machinery and processes to manufacture materials such as graphite, metal and metal alloys, ceramics and glass, plastics and polymers, and naturally occurring materials for use in products.

Mechanical Engineers plan and design tools, engines, machines, and other mechanically functioning equipment.

Petroleum Engineers devise ways to improve oil and gas well production and determine the need for new or modified tool designs.

Product Safety Engineers develop and conduct tests to evaluate product safety levels and recommend measures to reduce or eliminate hazards.
Science, Technology, Engineering, and Mathematics Career: Engineer Word Search
4th Grade Career Development

Directions: Find the different types of engineers listed below. Look across, down, and diagonally for the words. Circle or highlight each word you find.

Find these words

<table>
<thead>
<tr>
<th>Aerospace</th>
<th>Marine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical</td>
<td>Materials</td>
</tr>
<tr>
<td>Civil</td>
<td>Mechanical</td>
</tr>
<tr>
<td>Electrical</td>
<td>Petroleum</td>
</tr>
<tr>
<td>Environmental</td>
<td>Product Safety</td>
</tr>
</tbody>
</table>
Science, Technology, Engineering, and Mathematics Career: Engineer Word Search
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Answer Sheet

CHEMICAL

ENVIRONMENTAL

PETROLEUM

CIVIL

SAFETY

MECHANICAL

MATERIALS

REAR

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OS