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| Title: EUREKA! Bingo | |
| Author: Kathy Rusert Acorn High School Mena, AR | |
| Course: Science, Careers | Duration: One 45 minute class period |
| Grade Level: 8 | |
| Objective: Students will learn about jobs in the Oil and Natural Gas Industry. | |
| Summary of Lesson: Students will use the internet to learn about careers in Oil and Natural Gas. Twenty-four careers will be studied more closely by playing Eureka Bingo. | |
| Standards: CCSS, Arkansas State Frameworks, Next Generation Science Standards, Other | |
| Code: ESS.8.8.11 (may want to link careers from other areas as well) | Standard: Investigate careers related to changes in the Earth. |
| Teacher Excellence and Support System: Managing Classroom Procedures, Managing Student Behavior, Engaging Students in Learning | |
| Instructional Strategies and Practices: Identifying Similarities and Differences, Practice, Setting Objectives and Providing Feedback, Game, Technology | |
| Bloom's Level: <i>(Highest Level Only)</i> Analyzing | |
| Materials and Resources: <ul style="list-style-type: none"> • Bingo clue sheet • Computer or iPad • Game boards (copied and laminated) • Washable markers or grease pencils | |
| Formative Assessment: Teacher monitoring | |
| Teaching Notes: Duplicate game boards and laminate for multiple uses. | |



Student Activity:

1. Students will study oil and natural gas careers using classroom computers or iPads. At least 24 careers with definitions will be identified to use in the Eureka! Bingo Game.
2. Provide students with the career names and clues prior to playing the game. Allow time to study the careers. (See Student Handout)
3. Distribute game boards (which have been copied and laminated) to students then read the job description. Students must recognize the job description without the aid of the clue sheet.
4. Students will mark an X over the career when given the description. They should shout "Eureka!" when they have 5 in a row horizontally, vertically or diagonally.

EUREKA Bingo Clues

1. These specialists use vibrations to help them determine where to drill for oil and natural gas. (seismic operator)
2. When a construction site is active, this person performs a wide variety of tasks, including operation of equipment, installing and repairing equipment and lines, and manual labor. (roustabout)
3. Responsible for directing and coordinating work and activities associated with well drilling fluid systems and equipment, this person works outdoors in all seasons. (derrickhand)
4. This scientist determines the best location for drilling oil and natural gas based on analysis of underground structures. (geologist)
5. Driving trucks is this employee's main job. (swamper)
6. Setting up and operating a variety of drill equipment to remove petroleum products from the earth is the main part of this person's job. (rig operator)
7. This engineer uses math, physics, chemistry and technology to design products or make processes more processes more cost effective or create new products.\ (chemical engineer)
8. This specialist devises methods to improve oil and natural gas well production and oversees drilling activities. (petroleum engineer)
9. This is an entry-level position to aid seismic operators and requires working in all types of weather to create and monitor small earthquakes using explosive and other energy sources. (jughound)



10. A professional who notes the conditions surrounding the construction of a well is this person's job. (mudlogger)
11. This professional confirms land ownership and negotiates agreements with land owners for drilling or production rights. (landman)
12. Reading blueprints, installing industrial equipment, troubleshooting and repairing machinery are parts of this person's job description. (millwright)
13. This maintenance worker is responsible for maintaining and repairing industrial machinery in the field. (industrial machinery mechanic)
14. This person is responsible for operating all cranes, bulldozers, dump trucks and other types of heavy equipment. (heavy equipment operator.)
15. This position requires two levels of certification: diving and welding. (deep sea welder)
16. This person's drawings provide visual guidelines to show engineers how to construct oil and gas well structures. (draftsman)
17. This extremely hazardous job requires training to extinguish and cap blazing eruptive oil well blowouts on land or in the ocean. (oil well firefighter)
18. This person uses pressurized water and a vacuum system to excavate around utilities and pipelines. (hydrovac operator)
19. The job of this person is to safely and efficiently perform manual labor tasks on the drilling floor under the direction of the driller. (floorhand)
20. Analyzing oil analysis reports, interpreting data, and make recommendations based on up-to-the minute data is this person's responsibility. (Data Analyst)
21. This specialist designs and aids with construction for offshore platform operations. (mechanical engineer)
22. Supervising and coordinating construction activities to insure that work is completed properly in a timely manner is this person's job. (civil structural superintendent)
23. Exception writing and public relations skills are necessary for this employee who is responsible for marketing programs and communications strategies. (communications specialist)
24. State of the art technology is used by this technician to allow pipeline systems to be operated from a single control center to maximize safety and efficiency. (control center operator)



Game Board #1

| | | | | |
|---------------------|---------------------------------|---------------------------|--------------------------|-------------------------------|
| Landman | Seismic Operator | Jughound | Roustabout | Millwright |
| Derrickhand | Mudlogger | Geologist | Floorhand | Swamper |
| Petroleum Engineer | Rig Operator | FREE | Draftsman | Chemical Engineer |
| Mechanical Engineer | Civil Structural Superintendent | Deep Sea Welder | Hydrovac Operator | Oil Well Firefighter |
| Data Analyst | Heavy Equipment Operator | Communications Specialist | Central Control Operator | Industrial Machinery Mechanic |

Game Board #2

| | | | | |
|---------------------------------|---------------------------|----------------------|-------------------------------|---------------------|
| Landman | Swamper | Rig Operator | Geologist | Mechanical Engineer |
| Deep Sea Welder | Seismic Operator | Oil Well Firefighter | Industrial Machinery Mechanic | Millwright |
| Roustabout | Data Analyst | FREE | Jughound | Draftsman |
| Civil Structural Superintendent | Central Control Operator | Derrickhand | Heavy Equipment Operator | Hydrovac Operator |
| Floorhand | Communications Specialist | Chemical Engineer | Mudlogger | Petroleum Engineer |



Game Board #3

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|--------------------------|--------------------------|-------------------------------|---------------------------|---------------------------------|
| Oil Well Firefighter | Roustabout | Jughound | Deep Sea Welder | Civil Structural Superintendent |
| Mechanical Engineer | Petroleum Engineer | Swamper | Communications Specialist | Millwright |
| Hydrovac Operator | Geologist | FREE | Draftsman | Floorhand |
| Central Control Operator | Chemical Engineer | Industrial Machinery Mechanic | Derrickhand | Landman |
| Rig Operator | Heavy Equipment Operator | Seismic Operator | Mudlogger | Data Analyst |

Game Board #4

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|--------------------------|---------------------------------|---------------------------|-------------------------------|----------------------|
| Deep Sea Welder | Derrickhand | Communications Specialist | Hydrovac Operator | Petroleum Engineer |
| Chemical Engineer | Landman | Draftsman | Industrial Machinery Mechanic | Data Analyst |
| Heavy Equipment Operator | Floorhand | FREE | Mechanical Engineer | Oil Well Firefighter |
| Roustabout | Mudlogger | Jughound | Central Control Operator | Seismic Operator |
| Millwright | Civil Structural Superintendent | Geologist | Rig Operator | Swamper |



Game Board #5

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|-------------------------------|--------------------------|---------------------------------|---------------------------|--------------------------|
| Hydrovac Operator | Derrickhand | Draftsman | Oil Well Firefighter | Floorhand |
| Mudlogger | Central Control Operator | Deep Sea Welder | Geologist | Millwright |
| Industrial Machinery Mechanic | Rig Operator | FREE | Data Analyst | Heavy Equipment Operator |
| Seismic Operator | Chemical Engineer | Civil Structural Superintendent | Communications Specialist | Roustabout |
| Landman | Swamper | Mechanical Engineer | Jughound | Petroleum Engineer |

Game Board #6

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|--------------------|---------------------------|--------------------------|-------------------------------|---------------------------------|
| Petroleum Engineer | Data Analyst | Geologist | Seismic Operator | Central Control Operator |
| Rig Operator | Communications Specialist | Chemical Engineer | Roustabout | Hydrovac Operator |
| Draftsman | Mechanical Engineer | FREE | Industrial Machinery Mechanic | Landman |
| Swamper | Mudlogger | Oil Well Firefighter | Jughound | Civil Structural Superintendent |
| Deep Sea Welder | Millwright | Heavy Equipment Operator | Floorhand | Derrickhand |



Game Board #7

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|---------------------------------|-------------------------------|--------------|--------------------------|----------------------|
| Geologist | Industrial Machinery Mechanic | Rig Operator | Millwright | Seismic Operator |
| Landman | Petroleum Engineer | Roustabout | Central Control Operator | Deep Sea Welder |
| Civil Structural Superintendent | Jughound | FREE | Data Analyst | Draftsman |
| Derrickhand | Communications Specialist | Swamper | Chemical Engineer | Oil Well Firefighter |
| Hydrovac Operator | Heavy Equipment Operator | Mudlogger | Floorhand | Mechanical Engineer |

Game Board #8

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|-------------------------------|--------------------------|---------------------|---------------------------------|--------------|
| Jughound | Central Control Operator | Draftsman | Communications Specialist | Millwright |
| Industrial Machinery Mechanic | Oil Well Firefighter | Deep Sea Welder | Geologist | Data Analyst |
| Heavy Equipment Operator | Floorhand | FREE | Rig Operator | Swamper |
| Seismic Operator | Roustabout | Mechanical Engineer | Hydrovac Operator | Mudlogger |
| Petroleum Engineer | Chemical Engineer | Landman | Civil Structural Superintendent | Derrickhand |