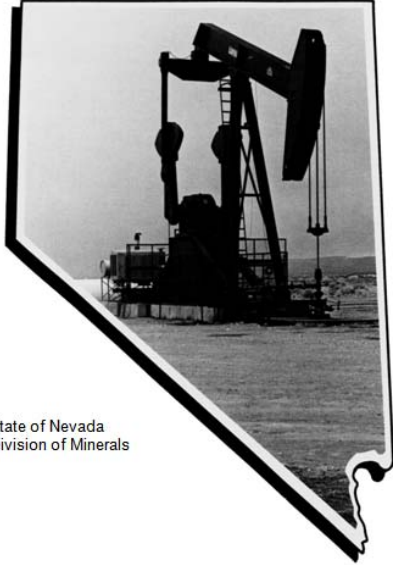
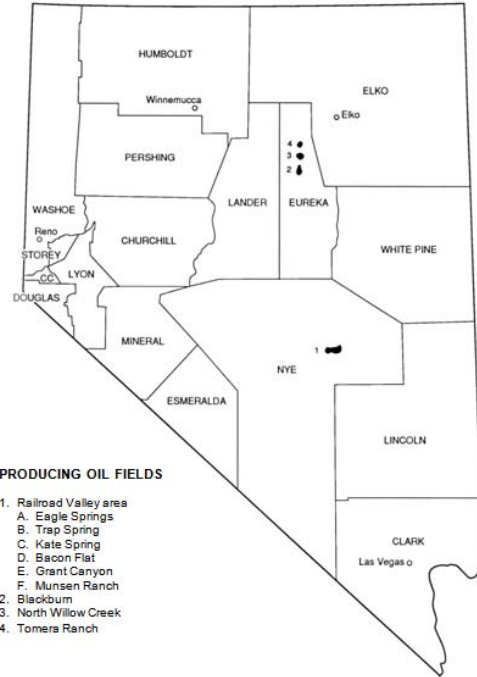


**Oil and Gas  
in Nevada  
Activity Book 2009**



State of Nevada  
Division of Minerals



**PRODUCING OIL FIELDS**

1. Railroad Valley area
  - A. Eagle Springs
  - B. Trap Spring
  - C. Kate Spring
  - D. Bacon Flat
  - E. Grant Canyon
  - F. Munsen Ranch
2. Blackburn
3. North Willow Creek
4. Tomera Ranch

Preview Version

**Oil and Gas  
in Nevada  
Activity Book 2009**

Original text by Susan F. Hodgson  
Modified by Dick Whiting  
Modified by Lowell Price

Original illustrations by Jim Spriggs  
Modified by Larry Jacox  
Modified by Lowell Price

Modified from *Geothermal in California*  
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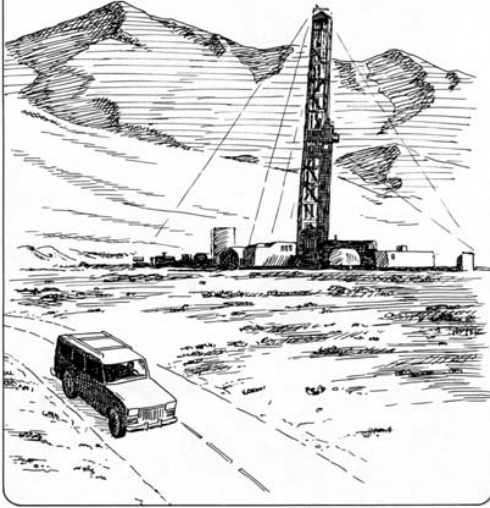
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- Mr. J. W. DeGraffenreid, Chevron Geothermal Plant Supervisor
- Mr. Larry Jacox, Graphic Artist, Nevada Bureau of Mines and Geology
- Mr. Paul Iverson, Deputy Director, Nevada Division of Minerals
- Mr. Dick Whiting, Resource Engineer, Nevada Division of Minerals

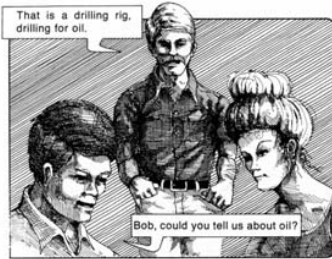
*Thanks to the following organizations:*

- Nevada Bureau of Mines and Geology
- Nevada Division of Minerals
- Makoil, Inc.
- Chevron Resources Company
- California Division of Oil and Gas

One day Bob, a geologist, and his young friends, Cindy and Jack, were driving through Railroad Valley, Nevada. As they passed a drilling rig off the road Bob asked them if they knew what it was and what it was doing? Neither Cindy nor Jack was sure and asked Bob to tell them. Bob stopped the car, they got out and Bob started to explain.



Page 1



That is a drilling rig, drilling for oil.

Bob, could you tell us about oil?

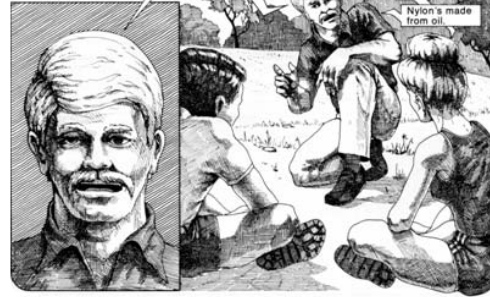
You probably don't know how important oil is to us. Here, why don't we sit down and I'll tell you and Cindy about oil.

Now we'll see how much you really need oil.

Cindy, your blouse is nylon, right?

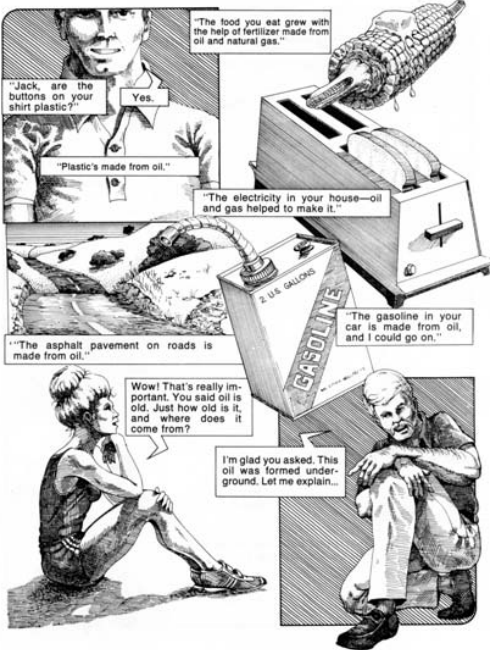
Yes.

Nylon's made from oil.

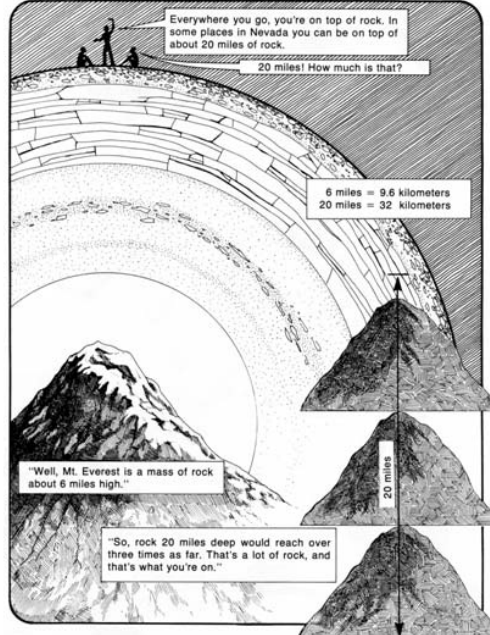


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# Preview Version



Page 3



Page 4

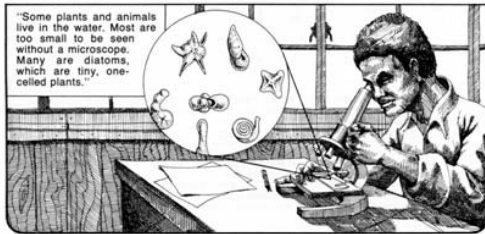


"Most rock containing oil begins as tiny grains of sand, silt, or clay, like the soil in your yard."

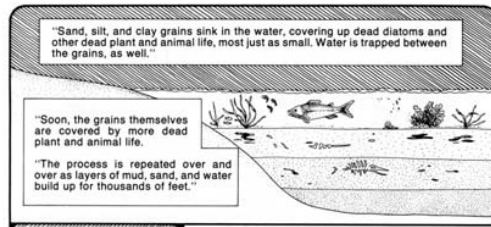
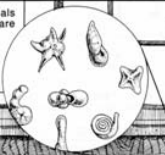
"Through the years, wind and water roll these small grains around. Eventually, they come to low spots and settle."



"Often the low spots are under water, in rivers, lakes, and seas."



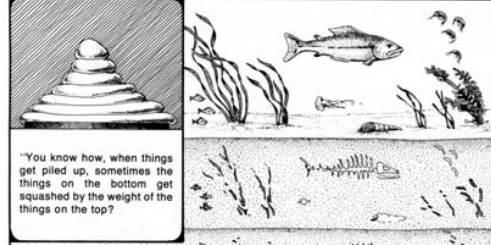
"Some plants and animals live in the water. Most are too small to be seen without a microscope. Many are diatoms, which are tiny, one-celled plants."



"Sand, silt, and clay grains sink in the water, covering up dead diatoms and other dead plant and animal life, most just as small. Water is trapped between the grains, as well."

"Soon, the grains themselves are covered by more dead plant and animal life."

"The process is repeated over and over as layers of mud, sand, and water build up for thousands of feet."



"You know how, when things get piled up, sometimes the things on the bottom get squashed by the weight of the things on the top?"

"Well, this is what happens to the layers of sand, mud, water, and dead plant and animal life. As they are covered up on the river, lake, and sea bottoms, the pressures on them become greater and greater."

"As they are buried deeper and deeper, they also get hotter. Finally after millions of years and the right amounts of heat and pressure, the mud and sand grains harden into rock. The rock looks like brown or gray cement."

"As the dead plant and animal life decay, oil and natural gas are formed. Most oil and gas come from decayed microscopic plants and animals."

"Exactly how the oil and gas form isn't known. But, heat, pressure, and bacteria all are important."

# Preview Version



**NEVADA'S PRESENT OIL AND GAS FIELDS**

"The earth is about 4 1/2 billion years old. Most Nevada oil is considered young by geologists, as it is about 23 million years old, which is still pretty old."



"Because Nevada oil is heavy and thick, and often contains a lot of heavy hydrocarbons and asphalt, even some paraffin, this makes Nevada oil harder to take from the ground."

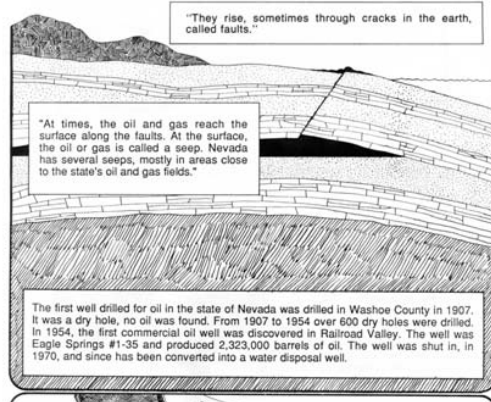
HEAVY, THICK OIL FROM RAILROAD VALLEY, NEVADA

LIGHTER OIL FROM PINE VALLEY AND SOME AREAS OF RAILROAD VALLEY OF NEVADA

"When oil and gas form, they don't stay still. Like you and me, they travel."



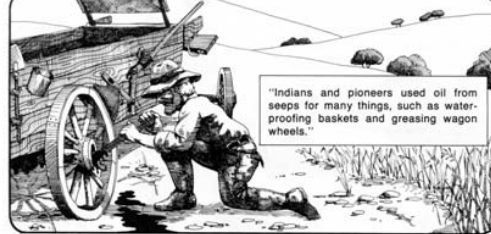
Where do they go?



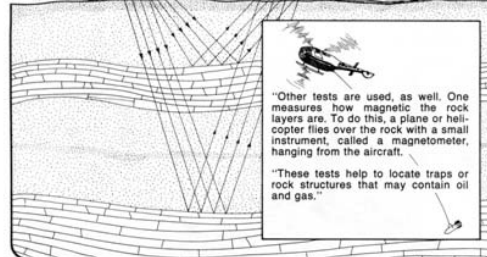
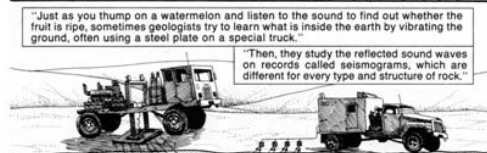
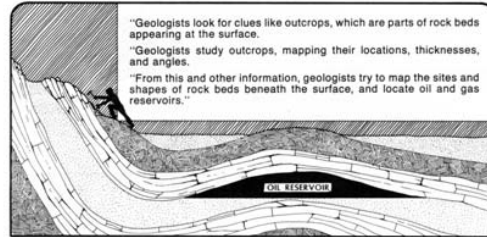
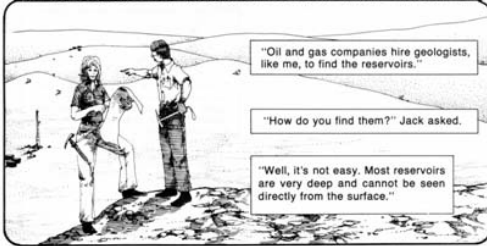
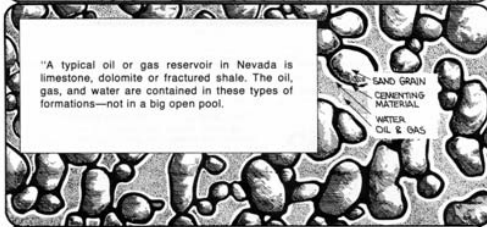
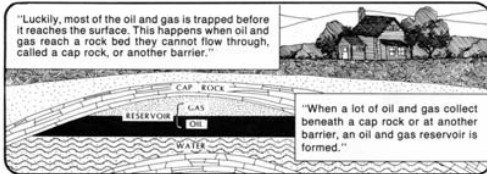
"They rise, sometimes through cracks in the earth, called faults."

"At times, the oil and gas reach the surface along the faults. At the surface, the oil or gas is called a seep. Nevada has several seeps, mostly in areas close to the state's oil and gas fields."

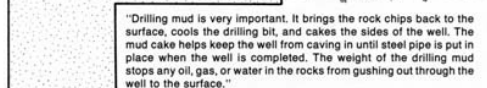
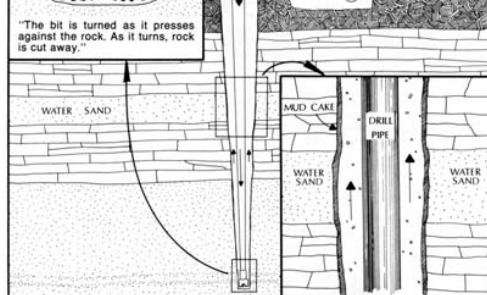
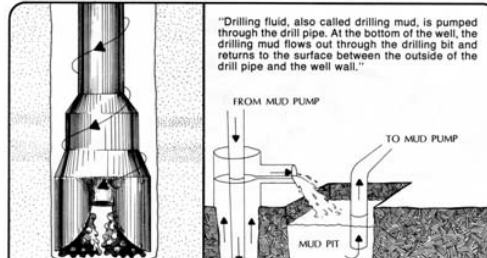
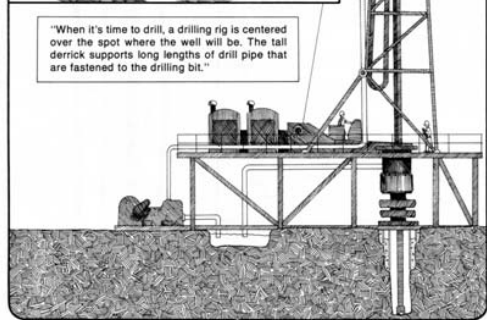
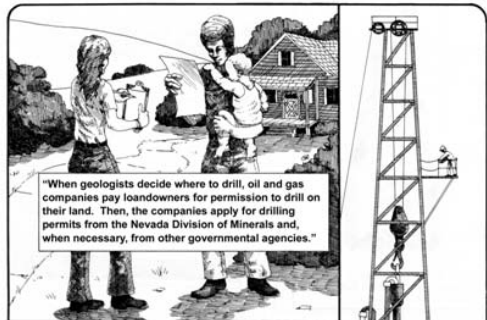
The first well drilled for oil in the state of Nevada was drilled in Washoe County in 1907. It was a dry hole, no oil was found. From 1907 to 1954 over 600 dry holes were drilled. In 1954, the first commercial oil well was discovered in Railroad Valley. The well was Eagle Springs #1-35 and produced 2,323,000 barrels of oil. The well was shut in, in 1970, and since has been converted into a water disposal well.




"Indians and pioneers used oil from seeps for many things, such as water-proofing baskets and greasing wagon wheels."



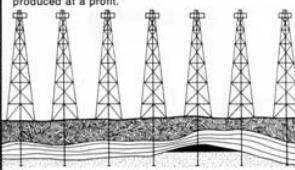
# Preview Version



"Today, drilling oil and gas wells is very safe. Laws enforced by the Division of Minerals and other agencies protect underground and surface areas."



"About 1 exploratory well in 7 is a good well. A good well means that any oil or gas that is found can be produced at a profit."

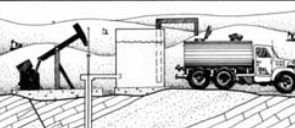
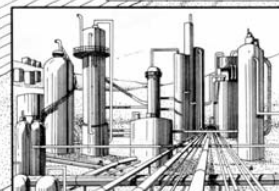


"When a well is not good, it is filled with cement and mud and carefully sealed off, under the supervision of the Nevada Division of Minerals."

"At a producing oil well, oil is piped from the well to holding tanks nearby."

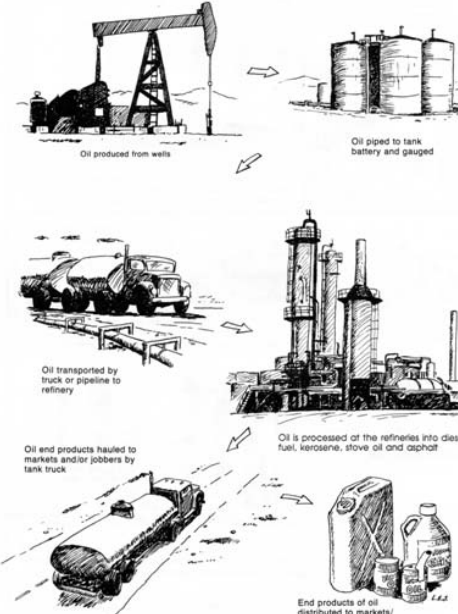
"Usually, a pump must be placed on a well to help lift the oil to the surface."

"After gas and water are removed from the oil, the oil is taken to a refinery by trucks."

There are two refineries in Nevada and they process most of the oil produced in Nevada. Products such as diesel, kerosene, stove oil and asphalt are made from Nevada oil.

### STEPS IN OIL PRODUCTION



Oil produced from wells

Oil piped to tank battery and gauged

Oil transported by truck or pipeline to refinery

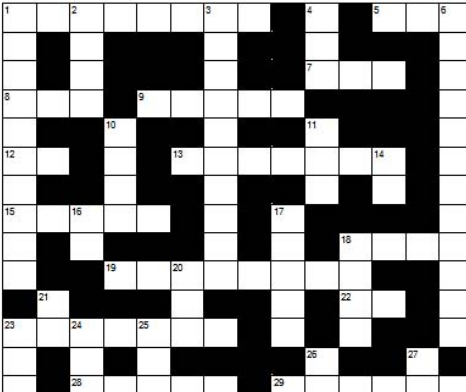
Oil is processed at the refineries into diesel fuel, kerosene, stove oil and asphalt

Oil end products hauled to markets and/or jobbers by tank truck

End products of oil distributed to markets/consumers

# Preview Version

### Oil and Gas Crossword



**ACROSS**

1. What a car need to run on
5. Drilling fluid
7. A hot or cold drink
8. A young boy
9. Another name for oil
12. It is time to \_\_\_\_\_
13. What is drilled through to get to oil and gas?
15. Oil leaks at the surface
18. To mix up
19. Oil needed heat and \_\_\_\_\_ to form
22. Before noon time
23. Paving for roads
28. The \_\_\_\_\_ is about 4 1/2 billion years old
29. To find something

**DOWN**

1. People that look for outcrops
2. It is found on the beach
3. Used to heat your house
4. What cuts rock?
6. They are used to make oil wells
10. A mouse \_\_\_\_\_
11. A call for help
14. A knock out (abbr.)
16. Extraterrestrial (abbr.)
17. A crack in the earth
18. Oceans are also called \_\_\_\_\_
20. A long skinny fish
21. Do \_\_\_\_\_ I say!
23. A small poisonous snake
24. Something good to eat
25. What we breathe
26. Company (abbr.)
27. It is \_\_\_\_\_ my house

### Seek and Find

|   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| N | G | N | I | R | P | S | P | A | R | T | O | M | E | R | A | R | A | H |
| A | O | O | C | S | E | R | C | W | O | L | L | I | W | H | T | R | O | N |
| B | A | R | R | A | N | C | H | S | T | O | M | E | R | A | R | E | S | O |
| A | C | T | I | N | G | X | N | A | O | U | I | N | A | A | U | A | N | R |
| C | T | H | P | S | U | N | O | Y | N | A | C | T | N | A | R | G | A | U |
| O | S | W | O | S | M | U | N | S | O | N | R | C | N | C | H | L | W | H |
| N | Z | I | V | P | G | H | O | S | T | R | A | N | C | H | G | E | O | C |
| F | S | L | I | B | O | N | O | R | O | A | D | R | D | N | A | S | L | N |
| L | P | L | A | L | R | O | I | B | M | H | P | E | I | G | B | P | L | A |
| A | M | O | N | A | U | D | O | R | E | S | U | R | H | O | B | R | I | R |
| T | C | W | N | C | B | U | A | S | P | O | P | O | P | Y | A | I | W | A |
| Y | P | C | W | K | K | N | Z | A | N | S | S | I | M | H | C | N | A | R |
| E | H | R | S | B | C | E | R | L | E | T | S | P | R | I | O | G | K | E |
| K | R | E | L | U | A | T | O | T | R | C | A | N | Y | O | N | S | D | M |
| R | O | E | M | R | L | O | A | A | Q | U | A | D | A | E | A | E | P | O |
| O | S | K | L | N | B | K | E | N | U | D | N | A | S | W | M | E | T |   |
| Y | K | A | T | E | S | P | R | I | N | G | S | D | F | T | A | T | E |   |

- |                  |                       |
|------------------|-----------------------|
| 1. Bacon Flat    | 7. Munson Ranch       |
| 2. Blackburn     | 8. North Willow Creek |
| 3. Eagle Springs | 9. Sand Dune          |
| 4. Ghost Ranch   | 10. Sans Spring       |
| 5. Grant Canyon  | 11. Tomera Ranch      |
| 6. Kate Spring   | 12. Trap Springs      |

### Oil and Gas Questions

1. Of the 17 counties in Nevada, which two are the oil producing counties?
2. Name three products made from crude oil.
3. What type of drilling rig is used in the oil industry?
4. What year was the first oil produced in Nevada?
5. What is drilling fluid called?
6. List two things drilling fluids do while drilling a well?
7. What created our oil reservoirs?
8. What year was the first well drilled in Nevada for oil?
9. Where did the Indians and pioneers get oil?
10. What did Indians and pioneers use the oil for?
11. Who are the professional people hired by oil companies to find oil and gas reservoirs?
12. Which Nevada state agency approves, permits, and regulates oil and gas drilling?
13. What is the piece of equipment called that is found on the bottom of the drill pipe?

### Oil and Gas Crossword Answers



### Seek and Find Answers



### Answers to Oil and Gas Questions

1. Nye and Esmeralda
2. Diesel, asphalt, and kerosene (stove oil)
3. Rotary rigs
4. 1954
5. Mud
6. Bring cuttings to the surface, keep bit cool, cake the side of the hole
7. Dead sea life and plants
8. 1907
9. From oil seeps
10. Waterproofing baskets, greasing wagon wheels
11. Geologists
12. Division of Minerals
13. The bit

Preview Version