Derricks to Desks Lesson Plan
Graphs and Their Uses

Subject. Areas: Mathematics

Suggested grade levels: 8-10

Strands: Statistics, Graphing

Rationale: The oil industry is a major factor in Kern County's economy. This activity will give the students the opportunity to learn and/or perfect different graphing techniques and their applications using relevant statistics and data.

Project Description: During a study of statistics and graphing, the students will be given the attached "Energy and Oil Statistics." Each group of 3 or 4 students will select one set or subset of the statistics. They will prepare their chosen data in each of the following forms: bar graph, pictograph, line graph, and circle graph (pie chart). For each graph, the group will also write a paragraph indicating the strengths and weaknesses of each graph, which aspect of the data that particular graph seems to emphasize, and in what situations or circumstances they would use that particular graph.

Related Activities: Obtain statistics on the amount of oil produced by one oil well, a specific oil field, or one local oil producer. Students can graph the information, and predict production rates. Related discussions should include various factors on production rates, such as availability, demand, and economic factors.

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Energy and Oil Statistics

Energy demand by source in United States

88% Fossil Fuels

40.4%	0il
25. 1%	Natural gas
23.1 %	Coal

Energy demand by source in California

50%	0il
29%	Gas
6%	Coal
6%	Nuclear
4%	Geothermal
3%	Hydroelectric
2%	Other

Energy demand by sectors in California

50% Transportation (cars, trucks, busses, planes, trains)
- 100% from Oil (very little from other sources)

28% Industrial (manufacturing, processing, extraction)
- 84% from oil and gas
- 10% from electricity
- 6% from coal and other

13% Residential (homes, apartments, condos)
- 68% from natural gas
- 29% from electricity
- 3% from oil

9% commercial (businesses, hotels, construction)
- 53% from electricity
- 38% from natural gas
- 9% from oil

Oil supply- U.S. Production

Texas	1,694,000 Barrels per day
Alaska	1,550,000 Barrels per day
Louisiana	1,122,000 Barrels per day
California	934,000 (600,000 from Kern County) Barrels per day
Oklahoma	251,000 Barrels per day
Others (26 states)	1,089,000 Barrels per day
Total U.S.	6,640,000 Barrels per day

Top 12 U.S. producing oil fields:

Field	Location	Production rate (Barrels per day)
1. Prudhoe Bay	Alaska	1,100,000
2. Kuparuk River	Alaska	313,000
3. Midway-Sunset	Kern	165,000
4. South Belridge	Kern	126,000
5. Kern River	Kern	125,000
6. Point Mcintyre	Alaska	98,000
7. Endicott	Alaska	90,000
8. East Texas	Texas	82,000
9. Wasson	Texas	77,000
10. Giddings	Texas	77,000
12. Elk Hills	Kem	65,000