

Teacher's Notes: **World Oil Discovery and Use**

Overview: reading a graph is a basic geographical skill, because graphs can show how conditions change over time.

This simple graph helps to put local headlines about oil discovery into a global perspective – students can assess whether a discovery has the potential of changing long-term trends.

Grade: 6-10

Related Discipline: Economics

GLCEs: 6G421, 6G512

Time: 20-30 minutes

Preparation: Copy the worksheet when it fits, or have it available for a teachable moment.

Setup: If you haven't already, note (perhaps with a sense of shared irritation) that news reports about energy tend to use really big numbers and a wide variety of units – barrels, BTUs, kilowatthours, quads, therms, tonnes, etc. This makes it exceptionally hard to put the reports into perspective, or even to compare information from one report with another. We recommend repeatedly emphasizing one number – the United States uses about 7 billion barrels a year (a billion barrels is a gigabarrel, a term that is usable now that we measure electronic memories in gigabytes). So, a simple example: suppose that a news report says that the Bakken formation of North Dakota may have 25 billion barrels of oil. Encourage students to think of that in terms of annual use – about 3-1/2 years.

Procedure: The worksheet is self-explanatory, but teachers should think of several ways to diagnose class readiness and provide assistance in making generalizations about the graph (see Debrief).

Answers: 1-2 Answers may vary – this is the purpose of the activity, to elicit perceptions and discuss.

3 – World War II – it is hard to run a drilling rig while carrying a rifle on another continent!
And the high but short “peak” around 1948-9 was basically “making up for lost time.”

4 – It marks a *change in trend* – prior to 1962, the trend in oil discovery was generally upward (with a lot of year-to-year variation); after 1962, the trend was downward.

5 – people used more oil than they discovered.

(How could this be? Because some oil had been discovered earlier but not used yet.

This is the basis for the term “proven reserves,” which is widely misunderstood, because a big change in technology (such as fracking) can increase our estimate of “recoverable reserves” without changing our estimate of total reserves. See Debrief.

Debrief: One important skill in reading a line graph is to learn how to ignore less important details and describe general trends in simple verbal terms. On this graph, the most important date is about 1980, when the two lines cross. It is useful, however, to lead students to that inference by looking at each line separately, and trying to identify the single most important date on each line:

Discovery – up until 1960, then down. Use – increasingly up until 1980, then more gradually up.

A side discussion about World War II can reinforce their mental chronology of 20th century events. 6th and 7th graders can easily make causal connections between war and decreased oil exploration, followed by a temporary increase after the war. One can then extend that principle to other topics, such as house construction, college going, and even baby making!

It bears repeating: *fracking does not discover new oil*. It just makes it possible to pump oil that we already knew was there but couldn't get with previous technology. The powerpoint presentation for this activity has pictures of fracking rigs and a discussion about exploration technology.

Vocabulary: oil petroleum crude drilling discovery consumption reserves

Extension: Do the world map activity called “*Oil in the World*,” which uses simple symbols (filled and open circles, or even poker chips of different colors on a floor map) to show total oil production and consumption in different world regions – North America, Europe, Russia, Southwest Asia, etc.) Then, if desired, look at the reserves and production in individual countries.