

Graphing the Production History of an Oil Well

By

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Derricks to Desks Lesson Plan

Subject: Mathematics, Advanced Algebra

Grade Levels: 9 – 12

Objectives: Students will be able to

1. Graph data using a logarithmic scale.
2. Analyze a typical Well History graph, including descriptions of the X and Y axis and general trends.

Prerequisite Knowledge: Students should be able to graph data using the coordinate plane.

Introduction: The amount of oil produced from a well will decline over time. There are several things that can be done to keep production up. These include steam injection, waterflooding, CO₂ injection, Nitrogen injection, formation fracturing and cleaning the well. Deciding how to increase production is done by a group of four people called the Reservoir Management Team. This consists of a geologist, reservoir engineer, operation engineer and a petro physicist. All of the data for the well is collected and presented to the group on a graph using a logarithmic scale. Together they look at all the data from the well and decide what should be done.

Project: The class will be broken up into groups of three or four students. Each group will be given a Well Review Graph for them to analyze. They should discuss what has happened to this well including the peak oil production and any spikes (high or low). Should this well be retired or kept in production? Why is a logarithmic scale used?

Graph: Example only. See the Derricks to Desks coordinator for more graphs.

