

# Peak Oil Game Student Guide

## Question

What factors affect the production of a well over time?

## Hypothesis

Draft a hypothesis to answer the question using an “If...then...because...” format.

## Materials

- Team notebook
- Jars of beans (“oil field”)
- Three containers (such as tubs or paper bags)
- Small spoons
- Digital balance

## Procedure

1. Form teams of 3-5 students.
2. One person will be the driller, one person will be the processor, and one person will be the transporter.
3. You will receive a set of jars that represent your oil field, one spoon, and three containers. One container is for **processing oil**, one is for **refined oil**, and the third is for **useable product**. There is also a communal waste container for the class to use.
4. Each jar contains a mixture of black beans (oil), pinto beans (dirt and other contaminants), and rocks (obstacles).
5. You may mine the oil from any jar in any order. However, you may not move or pick up the jars, lean them over, use your fingers to extract beans, or pull out the rocks. You may only use your spoons to scoop beans out of the jars. The jars must not move.
6. Your teacher will set the timer for 30-90 seconds (one “year”) and tell you to begin.
7. During each timed period, your goal is to get as much clean oil as possible from the **processing container** into the team’s **refined oil container**, and then transport it to consumer as **useable product**, at least 3 feet away. You will be penalized for contaminated oil and for oil or waste of any kind spilled outside of the containers. Aim to get as much product refined and transported as you can. **Refined oil** must be transported to the **useable product container**, 3 feet away, where products are stored and sold to customers.
8. One container will be used as the **processing plant** in which you separate the beans before placing them into the **refined oil container**.
9. The processing, drilling, and transport must take place at the same time, and stop after the timer goes off. All activity stops immediately, and scoring occurs.
10. For each pinto bean (dirt) in the **refined oil container**, two black beans are removed from the **useable product container**. Also remove the pinto beans.
11. For any bean spilled outside the containers, two black beans are removed from the **useable product container**.
12. All spilled oil or waste of any kind must be discarded into the communal waste container for the classroom.
13. Measure each year’s production by weighing the beans that remain in the **useable product container** after penalties. Record the production in the team’s notebook.
14. You will use this stored oil in the **useable product container** to purchase tools and employees for your team.
15. You may purchase better tools and hire more staff in between rounds. Your teacher will tell you how much each item costs. Be careful! The price of tools and staff will likely change as the game continues.

## Conclusions

1. Use a computer or graph paper to graph your team’s yearly production. How does your graph compare to the real oil production graphs for the U.S. and world oil production? (<http://tonto.eia.doe.gov/dnav/pet/hist/mcrfpus2a.htm>)
2. Did the oil in your oil field really run out?
3. Estimate the percent of the original oil left in your oil field.
4. How is this model similar to the real world?
5. How is this model different from the real world?
6. Why might companies stop purchasing technology to produce oil from a well, or choose to abandon it?

