Refinery Products Math Teacher Guide

Background

This activity combines students' reading comprehension skills and their ability to pick relevant information from text with multiplication, division, and other computational skills.

Objective

- Students will be able to successfully perform all the calculations listed.
- Students will be able to explain in very simple terms the process of crude oil refining.
- Students will be able to relate the work done at Deer Park to everyday living.

Time

- 40-60 minutes

Materials

- Refinery Products Math Student Guide
- Scrap paper
- Calculators (optional)

Preparation

- Review the math skills used to solve the problems.
- Make as many copies of the student page as needed.
- Gather scrap paper, and calculators, if desired.

✔ Procedure

1. Introduce the activity. Explain that students are going to read about an oil refinery. Explain to students what the workers at a refinery do.
2. Have students read the text on the student page.
3. Answer questions that students have about the Deer Park Refinery and ask questions to help students glean the important facts from the text.
4. Read each problem to students. Answer questions as necessary.
5. Allow students time to work the problems.

✓ Answer Key

1. The text states that 100,000,000 barrels are brought in annually. 100,000,000 ÷ 365 = 273,973 barrels per day.
2. 273,973 barrels × 42 gallons / barrel = 11,506,866 gallons of oil.
3. 273,973 barrels × 20 gallons / barrel = 5,479,460 gallons of gasoline.
4. 273,973 barrels × 6 gallons / barrel = 1,643,838 gallons of materials to make products.
5. 273,973 ÷ 19,687,000 = 0.0139164 –>1.39% or 1.4%
6. One barrel is 42 gallons (information in question #2). 42 × 7.8 = 327.6 pounds per barrel.
7. Student answers will vary. One 24-carbon molecule can be made into three 5-carbon molecules and one 9-carbon molecule, or four 6-carbon molecules, or one 7-carbon molecule, one 8-carbon molecule, and one 9-carbon molecule, or two 7-carbon molecules and one 10-carbon molecule, etc.