

Title: Applications of parabolas

Objectives: Students will use their knowledge of quadratic equations and parabolas to solve problems.

Materials: Meter stick, paper, pencil, worksheets, graphing calculators

Introduction: (Engage and Explore): Some students tend to get anxious about word problems, so begin the lesson by putting the quadratic equation $y = -4.9t^2$ on the board. Explain to them that this is the equation of an object in free-fall released from a height of zero, where y is measured in meters and t is in seconds. Let students get in pairs and give

solare at Font-Romeur (a parabolic solar reflector), and parabolic reflector heaters. (The links below are excellent resources on applications of parabolas.) Introduce to the class the quadratic equation that governs the height of a projectile: $y = \frac{1}{2}gt^2 + v_0t + s_0$ where v_0 is the initial velocity, s_0 is the initial height of the object, g is acceleration due to gravity. Allow students to pick an application and write a report. Guide the students when they are picking their topic to be sure that they are appropriate. If the class has