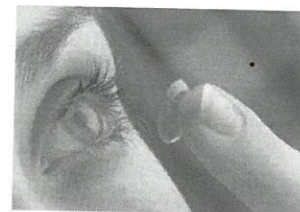
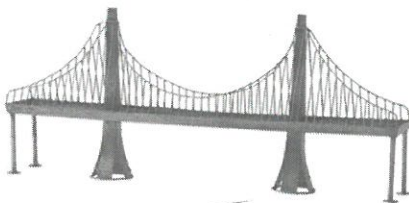
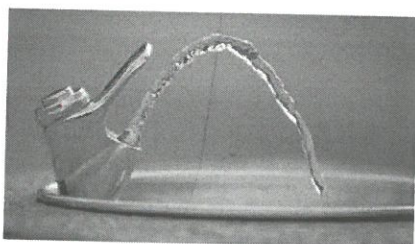


Lesson 3: Characteristics of Quadratic Functions

GOAL:

To describe the characteristics of a quadratic function including:

- Shape
- Vertex
- Leading coefficient
- End Behaviour
- y-intercept
- x-intercept(s)
- Range



A Quadratic Function has the form: $y = ax^2 + bx + c$, $a \neq 0$, b and c are numbers

The shape formed by water coming out of a water fountain is called a **parabola**. The equations associated with this type of shape are called **quadratic functions**. Quadratic functions have a distinct shape: it's often described as a cup shape or an inverted cup shape.

Example 1: Using the Graphing Calculator to Analyze Functions

Use your graphing calculator to determine which of the following are quadratic functions.

- a) $y = .02x^2 - 3$ — Quadratic
- b) $y = 2x^3 + 1$ — cubic
- c) $y = -(x+3)(x-1)$ ← Quadratic
- d) $y = 2x - 1$ — linear
- e) $y = -2x(x^2 + 1)$ cubic
- f) $y = x(x-5)$ ← quadratic
 $y = x^2 - 5x$

