

LIFE LESSONS

Overview: Students examine critically the moral lessons of the production and explore how these lessons apply in their own lives. *NYC Performance Standards: E2, E2f, E5a. Blueprint: Making Connections, Careers and Lifelong Learning.*

Instructions for Students:

Below is a list of lessons that some people recognize in the production. Choose one and explain whether you agree or disagree with it. Show how the circus demonstrates this lesson, and provide an example of the same idea either from your own life or from a book or movie.

- *Risk brings reward.*
- *Explore new worlds.*
- *Failure comes before success.*
- *Expect the unexpected.*
- *Appearances are deceiving.*
- *Two people can accomplish more than one.*

TUMBLING PARABOLAS

Overview: Students demonstrate the parabolic trajectory of a projectile in motion. Objects in motion (juggling) and bodies in motion (acrobatics) both follow this path. *NYC Performance Standards: M2d, M2o, M3a, M3m; S1d, S5b, S5f. Blueprint: Making Connections.*

Supplies and Set Up: Large sheets of graph paper with cardboard backing, tennis ball, water-soluble paint, and protective plastic or latex gloves.

Instructions for Students:

The experiment:

1. Set the large graph on an incline by propping it on a table. One end should rest on the table, and the other tilt backwards.
2. Partners stand at either side of the base of the graph.
3. Wearing protective gloves, one person dips the tennis ball in paint and rolls it up the paper towards the other partner, who catches it when it rolls back down.
4. The paint will trace a parabolic arc on the graph paper.
5. Try a few times on different sheets of graph paper. Vary the angle of the paper and the height of the throw, or mark a spot on the paper and try to roll the ball over it.

Analyzing the data:

1. Once the paint is dry, choose graph lines to represent the x- and y-axes.
2. Estimate coordinates of three points along the paint path.
3. Substitute the coordinates identified into the quadratic equation ($y = ax^2 + bx + c$) to determine the equation of the paint line.