



Nels Ross

STUDY GUIDE

Science Circus

ABOUT THE PRESENTER

Nels Ross is a performer, speaker, and oddball who has won the hearts of American and international audiences (www.nelsross.com). Applying his diverse background in education and performing arts, Nels presents arts-in-education programs that promote character education, wellness, math, science, reading, and more through a blend of physical theater, variety arts, music, and humor.

ABOUT THE PROGRAM

In *Science Circus*, Nels and his special guest, The Professor, perform math and science demonstrations using bouncing balls, acrobatics, balancing, spinning plates, and other things that you might see at the circus. Did you know that you can use mathematics to create juggling patterns? That a few simple laws can explain the motion of things from acrobats to planets? That Isaac Newton had a brother named Fig Newton? (Kidding!) Students will be amazed and amused as they learn about forces, energy, motion, and more. (Grades K-6)

"I've been thrilled with the response to this unique program, and I hope it fosters not only an interest in math and science, but the joy of learning and discovery."

- Nels Ross

CURRICULUM CONNECTIONS

This performance will enhance awareness and appreciation of physical theater, variety arts, and the issues mentioned above. In addition, the activities in this study guide provide many connections to New York State Learning Standards (see AFTER THE PROGRAM).

GETTING READY FOR THE PROGRAM

- Arrange for a clean, well lit performance space with 10' or higher ceiling if possible. Focus and repair lights in advance if needed. Nels brings his own sound system, and requests access 30-45 minutes before the program.
- Make a morning announcement the day of the performance:
"Today our special guest, Nels Ross, will share an exciting assembly program with us. So be prepared to laugh and enjoy amazing skills, stunts, humor, and more!"
- Topics for exploration: physical theater, variety arts, humor, juggling, vaudeville
- Question for discussion: Where can you find or apply math and science in everyday life?

AFTER THE PROGRAM

- Discuss and/or write about the experience. How did it affect you? What did you learn?
The Arts—Responding to and Analyzing Works of Art
English Language Arts—Language for Information and Understanding
- Check out www.injest.com/fun to find info on the history of juggling and physical comedy, instructions for how to juggle, puzzles related to the program, and other resources.
Mathematics, Science, & Technology—Information Systems
English Language Arts—Language for Information and Understanding
- Use the library or internet to learn more about juggling, humor, or other program components.
Mathematics, Science, & Technology—Information Systems
- Create an art project or poster that features juggling, humor, or the theme of the program.
The Arts—Creating, Performing, and Participating in the Arts
- Read stories, poems, or articles about juggling, humor, or a topic related to the program. Write your own story, poem, or report.
English Language Arts—Language for Information and Understanding
English Language Arts—Language for Literary Response and Expression
- Research the role of juggling in various cultures throughout history. Create a timeline or world map with descriptions or illustrations. (See www.injest.com/fun for a starting point.)
The Arts—Understanding the Cultural Contributions of the Arts
Social Studies—World History
- Research the history of vaudeville, circuses, or other venues where variety artists have performed in the United States. If possible, interview variety artists from New York.
Social Studies—History of the United States and New York
- Investigate applications of juggling in the study of science, mathematics, and other fields. Search *Discover*, *Scientific American*, and other periodicals for articles.
Mathematics, Science, & Technology—Analysis, Inquiry, and Design
- Juggle! It's a fun and safe activity that develops patience, persistence, self-discipline, and more. Below are ways to benefit from juggling as an ongoing activity.
Physical Education—Personal Health and Fitness
The Arts—Creating, Performing, and Participating in the Arts
The Arts—Knowing and Using Arts Materials and Resources

Learn new skills. If you can juggle scarves or beanbags, try other things such as rings, clubs, devil sticks, diabolo, hats, cigar boxes, tops, yoyos, spinning plates, etc.

Get connected. Go to www.juggle.org to join the International Jugglers' Association and get Juggle Magazine. Go to www.jugglingdb.com to find juggling groups and events near you.

Share the joy. Teach others how to juggle. Join a juggling club or start one of your own. Put on shows or demonstrations for your friends, family, school, or community.