

SMASH LAB

High Rise Escape

Teacher's Guide



Grade Level: 9–12

Curriculum Focus: Science

Running Time: 40 minutes

Program Description

A team of scientists wonder if there is a faster way to escape from a high rise in the event of a fire. They design two different models and test them to see which one is the safest.

Learning Objectives

After viewing the program and participating in discussion, students will be able to:

- Describe the poles of a magnet;
 - Understand the importance of research before experimenting;
 - Relate the concepts of gravity and terminal velocity;
 - Identify how a control group in an experiment is necessary to collect accurate data;
 - Explain how science experiments drive scientific progress.
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Classroom Connections

How does the Smash Lab team initially test magnets? What do they discover?

Why does the Smash Lab team time how long it takes each member to run down a fire escape? How will this data be used during the full-scale experiment?

Why do Chuck and Kevin jump from a building? What conclusion do Chuck and Kevin come to after jumping?

How does more weight affect the power of the magnets used in the magnetic elevator? How does the team change their design to accommodate more weight?

How effective is this invention? Should magnetic elevators be installed on high rise buildings? Explain why or why not.

Classroom Activities

Most people think of magnets as something to decorate the fridge, but industrial high-powered magnets are actually used in many situations. Students should review the clip of Deanne explaining how the force of a magnet works. Students should then research other uses of magnets. In groups, students should choose one activity that industrial high-powered magnets are used for (for example, work holding, lifting, fixturing, conveying, magnetic separation, etc.) and present the information to the class.

Target Vocabulary*

equidistant - equally distant

magnet - a body having the property of attracting iron and producing a magnetic field external to itself; specifically: a mass of iron, steel, or alloy that has this property artificially imparted

velocity - quickness of motion

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Academic Standards

National Academy of Sciences

The National Academy of Sciences provides guidelines for teaching science in grades K-12 to promote scientific literacy. To view the standards, visit this Web site:

<http://books.nap.edu/html/nses/html/overview.html#content>.

This lesson plan addresses the following national standards:

- Physical science
- Science as inquiry
- Science and technology
- Science in personal and social perspectives