

Teaching Guide to *Shortcuts* by Jeff Harris

Introduction

Shortcuts by Jeff Harris is a beautifully illustrated, fact-packed page that makes learning fun. Each week, *Shortcuts'* multicultural cast (Juanita, K., Roland, Junior and James) offers facts, riddles, jokes and puzzles to help kids learn about science, geography, animals, food, history and holidays.

Each teaching guide provides ideas for expanding the lesson and creating discussion and learning activities for your students. The grade level for the guides is usually 3rd to 4th, but they can be adapted for use at other levels. The guides are broken down into four areas :

1. Questions for Discussion and Further Study

Designed to help students think and research, not just give one-word answers

2. Activity Ideas

Designed to allow students to be creative and teach themselves

3. Use the News

Designed to have students use the news in studying each topic

4. Quick Quiz

Designed to be adaptable to several grade levels, evaluate students' comprehension and build vocabulary and math skills

You might use the teaching guides in the following ways:

Questions for Discussion and Further Study: Engage the entire class by asking each question aloud and listing the students' answers on the board. Or have them use reference resources to give their own answers to the questions. Allow them to discuss other students' answers after they've researched the topics. Key words or phrases that can help students search for more information are italicized.

Activity Ideas: Give the students a time limit to research their projects, using library or study time. By having the students cite their resources you can check their work; or, alternatively, tell them which resource(s) you prefer them to use.

Use the News: These can be worked on individually but we suggest they work in groups to learn teamwork skills.

- **Quick Quiz:** We suggest you review the quizzes ahead of time and change the phrasing or difficulty level based on the students' abilities.

Shortcuts: THE UPS AND DOWNS OF ELEVATORS

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Objective: After completing the exercises, students should have a better understanding of elevators.

Subject Areas: The following information about elevators will be discussed:

- Space elevators
- Elevators versus Escalators
- Elevator safety

Evaluation: Students may be evaluated using the following point scale:

Four points: Information is accurate, organized, shows creative thought/use of materials

Three points: Information is accurate and organized

Two points: Information is mostly accurate; organization needs some work

One point: Significant inaccuracies; lacks organization

Topics for Discussion and Further Study

1. What does the word “hydraulic” mean, as in a hydraulic elevator?
2. Do skyscraper buildings have single elevators that rise the whole height of the building?

Activity Ideas

- What is a “space elevator”? How could an elevator extend into space? How fast would it move? What would power it? What would keep it in the air? How safe could it be? Research and try to answer these and other questions you might have.
- What are the advantages of using an elevator compared to an escalator? First, brainstorm the advantages and disadvantages of each device. Then summarize your ideas into a comparative paragraph explaining how and why each machine is used.

Use the News

- Are you ever nervous riding an elevator? What happens if the cable snaps? Research how modern elevators are designed to be safe, and write an article for the newspaper explaining to your readers why they don't have to worry. Diagrams could be included.

Answers to the Quiz

1.) a, 2.) a, 3.) a, 4.) c, 5.) a, 6.) a , 7.) chair, 8.) counter, 9.) ground floor , 10.) 17 ½ tons

Quick Quiz — Elevators

1. Some freight elevators can lift up to 44 tons.
a. True b. False

2. In the 1850s, Elisha _____ invented a braking device for elevators.
a. Otis b. Riddle c. Luther d. Vader
3. Riding in an elevator is one of the safest forms of transportation.
a. True b. False
4. Scientists are working on a space elevator that would be used to lift items nearly _____ above the Earth's surface.
a. 10km b. 100km c. 10,000km d. 1,000,000km
5. Hydraulic elevators are powerful elevators.
a. True b. False
6. _____ mathematician Archimedes invented an elevator 2,300 years ago.
a. Greek b. German c. Chinese d. French

Vocabulary Comprehension

7. European royalty sometimes used a type of elevator called a “flying _____.”
8. The weight of the elevator car is balanced by a heavy _____ weight.

Math Comprehension (subtraction, division, addition, fractions)

9. What floor would an elevator end up on if it started at floor 2, went up 31 floors, down 16 floors, up 4 floors, and down 21 floors?
10. If an elevator could lift 35 tons, how much would half that be?