

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: SEARCHING FOR SATELLITES

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

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

- Types of orbits
- International feelings about “first in space”
- How satellites stay up there

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 geosynchronous orbit mean?
2. If Telstar 1 is an example of an artificial satellite, what is an example of a *natural* satellite?

Activity Ideas

- How did the United States feel about the Soviet Union getting the first satellite to orbit the Earth? Research and report on how excited or worried Americans felt about this situation. Why did they feel this way?
- Do satellites orbit the Earth forever? Why or why not? Research and explain what happens up there.

Use the News

- What were some of the original news articles like that reported on Sputnik 1 and 2? Research and share what you think about these news reports. Here is one to get you started: <http://www.nytimes.com/partners/aol/special/sputnik/sput-17.html>

Answers to the Quiz

1.) b, 2.) b, 3.) b, 4.) c, 5.) a, 6.) d, 7.) constellations, 8.) Global 9.) 750 km , 10.) \$67 million

Quick Quiz — Satellites

1. The Soviet satellite Luna 1 currently orbits the moon.
a. True b. False

2. In 1957, the Soviet Union launched the first successful satellite to orbit the Earth, called _____.
- a. Luna 2 b. Sputnik 1 c. Telstar d. Tiros
3. Satellites often collide with one another.
- a. True b. False
4. The U.S. Department of _____ maintains the "Space Object Catalog."
- a. State b. Energy c. Defense d. Space
5. There are more than 2,000 functioning satellites orbiting our planet.
- a. True b. False
6. Sputnik 2 had a _____ on board.
- a. bird b. mouse c. monkey d. dog

Vocabulary Comprehension

7. Some satellites are arranged in groups called _____.
8. Satellites in the _____ Positioning System allow users to determine their exact locations on the planet.

Math Comprehension (subtraction, division, addition, fractions)

9. What's the difference in altitude between a satellite at 250 km and one at 1,000 km?
10. How much more would a \$166 million satellite cost than a \$99 million satellite?