

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: SHEDDING SOME LIGHT ON AURORAS

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

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

- Auroras and Earth's magnetic field
- Are magnetic storms dangerous?
- Aurora art

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. Are auroras higher than a plane flies?
2. Why do auroras usually appear at Earth's poles?

Activity Ideas

- How dangerous can a magnetic storm or solar flare be to us? What might happen? Has a big one ever occurred? Research and report on these solar phenomena.
- Auroras are beautiful to see. Here are instructions to make your own "aurora art." You can use "Paint" on your computer, watercolor paints, chalk, or pastels. Watch each step in the video and then try it on your own. You may want to view some real photographs of auroras you could find on the Internet before you start your artwork.
<http://www.drawingnow.com/tutorials/view/how-to-draw-aurora-borealis/>

Use the News

- Auroras are usually only visible at night. What else occurs at night? Read the news for articles about nighttime events. When you find something, summarize it, and explain if it could have occurred during the day. Did it have to be at night?

Answers to the Quiz

1.) a, 2.) c, 3.) a, 4.) b, 5.) b, 6.) d, 7.) wind, 8.) magnetic, 9.) 900 km, 10.) 1.5 days

Quick Quiz — Auroras

1. Auroras can occur during the day.
a. True b. False
2. The word aurora comes from the Latin word for “_____.”
a. wind b. moonlight c. sunrise d. color
3. Auroras can last for several days.
a. True b. False
4. Auroras often appear as curtains of light that align in an _____ direction.
a. up-down b. east-west c. north-south d. north-east
5. Auroras that occur at Earth’s North Pole are called the Aurora australis.
a. True b. False
6. Disturbances on the sun are sometimes called “solar _____.”
a. fire b. wind c. rockets d. flares

Vocabulary Comprehension

7. Our sun constantly emits a stream of charged particles called the “solar _____.”
8. Violent space “weather” is sometimes called a “_____ storm.”

Math Comprehension (subtraction, division, addition, fractions)

9. What is the distance between an altitude of 100 and 1,000 km?
10. If an aurora lasts for 36 hours, about how many days is that?