

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 A SOLAR ECLIPSE

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Objective: After completing the exercises, students should have a better understanding OF a solar eclipse.

Subject Areas: The following information about a solar eclipse will be discussed:

- When and where is the next one?
- Observing a real solar eclipse
- Making your own eclipse simulator

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. When and where is the next solar eclipse going to occur?
2. How do you make a pinhole projector to view the sun safely?

Activity Ideas

- Ever seen a solar eclipse? Here are two videos to give you an idea what one is like. The first one is a real video of one occurring. The second clip is an animation explaining the science. http://www.youtube.com/watch?v=K42UqWGdA_o
<http://www.youtube.com/watch?feature=endscreen&NR=1&v=E1B3RLfIA1s>
- Get in small groups and use materials such as paper, cardboard, a volleyball, golf ball, etc. to create your own simulation of a solar eclipse. For example, if you decide your own head is the Earth, you can use objects to represent the Sun and Moon so you can “see” an eclipse occurring. You'll have to vary the distance between your head, the Moon, and the sun so the sun gets totally blocked by the smaller moon. Once a group designs and demonstrates it, share it with the rest of the class.

Use the News

- Imagine a solar eclipse happened in your area. Write a reporters view of what happened. Did people gather to watch it together? Did anything happen when it got dark? Be creative, but use some science facts too.

Answers to the Quiz

1.) a, 2.) c, 3.) a, 4.) d, 5.) a, 6.) b , 7.) totality, 8.) orbits, 9.) 12 1/2 min, 10.) 10,500 km

Quick Quiz — Solar eclipse

1. Most solar eclipses last for only about two and a half minutes.
a. True b. False
2. The sun's diameter is about _____ times bigger than the moon's.
a. 4 b. 100 c. 400 d. 1,000
3. There are usually about two solar eclipses each year.
a. True b. False
4. During a solar eclipse, a shadow of the _____ travels across the surface of Earth.
a. Earth b. sun c. solar system d. moon
5. The shadow from a solar eclipse can travel as fast as 2,200 mph.
a. True b. False
6. There are three types of solar eclipses: partial, annular, and _____.
a. lunar b. total c. crescent d. fatal

Vocabulary Comprehension

7. A total eclipse can only be viewed along a thin tract called “the path of _____.”
8. The moon _____ Earth once every month.

Math Comprehension (subtraction, division, addition, fractions)

9. If the moon starts to block the sun for five minutes, then totally blocks it for two and a half minutes, and finally moves away from the sun for another five minutes, how many minutes in total is that?
10. If an eclipse shadow travels at 3,500 km/hr., how far will it travel in 3 hours?