

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: A TILTED LOOK AT URANUS

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

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

- Observing Uranus in the night sky
- How big and distant are the planets
- Demonstrating the tilt of Uranus' axis

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. Light takes two hours and 40 minutes to reach Uranus. How fast is light?
2. Can you find Uranus in a small telescope? Try these instructions:
<http://www.skyandtelescope.com/observing/highlights/Uranus-and-Neptune-in-2012-138059253.html>

Activity Ideas

- Uranus is much bigger than Earth, but it is smaller than Jupiter and the sun. How do all our other planets compare to Uranus? And how far away are they? Here are two websites that will help you get a 'feel' for their sizes and distances. The first one gives you an interactive comparison chart -- showing their sizes as you choose which planets to compare. <http://sciencenetlinks.com/interactives/messenger/psc/PlanetSize.html> The second webpage gives instructions about how to take your class on a "space trip" outside to demonstrate how distances within our Solar System.
<http://www.noao.edu/education/peppercorn/pcmain.html>
- You may have seen a demonstration of how the sun's light shines on Earth, using a lamp or flashlight on a ball or globe, but now you should try it again with Uranus' odd tilt in mind. Let groups attempt to use ordinary materials to demonstrate Earth's axis, tilt, rotation, and revolution around a "lit" sun. Then do the same thing with Uranus.

Use the News

- Uranus was named after the Greek god of the heavens. What other Greek or Roman gods' names do we use in our modern society? Brainstorm a list of examples of when these names have been used, such as in products, movies, art, etc. You may want to first review what all the names are.

Answers to the Quiz

1.) b, 2.) a, 3.) a, 4.) d, 5.) b, 6.) c , 7.) axis, 8.) hurricanes 9.) 236 degrees, 10.) 350 km/hr.

Quick Quiz — Uranus

1. Uranus has no rings.
a. True b. False
2. Uranus is named after the Greek god of the _____.
a. heavens b. Earth c. underworld d. war
3. Uranus was the first planet discovered using a telescope.
a. True b. False
4. Uranus is surrounded by 13 dark _____.
a. moons b. planets c. stars d. rings
5. Uranus takes about eight earth years to make one revolution around the sun.
a. True b. False
6. Uranus was discovered by William Herschel of _____.
a. France b. America c. England d. Germany

Vocabulary Comprehension

7. Uranus has an extreme tilt of its _____.
8. Uranus has several dark spots that are similar to _____ on our planet.

Math Comprehension (subtraction, division, addition, fractions)

9. How much temperature difference is there between Uranus' -216 deg C and Earth's, at 20 deg C ?
10. If some winds on Uranus blow 700 km/hr., what is half that?