

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: KEEPING TRACK OF THE MOONS OF SATURN

For release the week of: May 20, 2013

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

Subject Areas: The following information about the moons of Saturn will be discussed:

- Definition of “moon”
- Origins of the names of Saturn’s moons
- Images of Saturn’s moons

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. We usually associate volcanic activity with hot lava. How can Saturn’s moon Enceladus erupt with water ice?
2. If Titan is larger than the planet Mercury, what is the definition of a “moon”?

Activity Ideas

- The moons of Saturn are named after mythic characters. Choose one to research and report on. Who was this mythological person? What culture/country was he from? What was the character like?
- Saturn has beautiful rings and many moons surrounding the planet. What do they really look like? There have been space probes and space telescopes that can look at these celestial objects to show us what they look like. Do an “images” Internet search for “Saturn’s moons” to see hundreds of these images. Can you tell which are real photographs, and which are created by artists? Also, check out this webpage to read some questions and answers about Saturn’s moons by students to a scientist.
<http://bryankillett.com/projects/moons-tides-and-grace>

Use the News

- Your newspaper may have a section with information about phases of our moon, and where our planets are currently located. Is Saturn currently in your night sky? Which direction? About how high from the horizon? Use this information to go out at night and try to locate constellations and planets that may be visible.

Answers to the Quiz

1.) b, 2.) b, 3.) a, 4.) a, 5.) a, 6.) c , 7.) system, 8.) atmosphere, 9.) 194, 10.) 1,112 km

Quick Quiz — The moons of Saturn

1. Titan is larger than Earth.
a. True b. False
2. Titan is the _____ -largest moon in the solar system.
a. first b. second c. third d. fourth
3. Titan is the only moon in our solar system with a thick atmosphere.
a. True b. False
4. One of Saturn's smaller moons is called _____.
a. Mimas b. Mercury c. Ganymede d. Titan
5. The moon Titan was discovered by the astronomer Christiaan Huygens.
a. True b. False
6. Astronomers have identified ____ known moons orbiting the planet Saturn.
a. 5 b. 22 c. 62 d. 744

Vocabulary Comprehension

7. Astronomers sometimes refer to Saturn and its many moons as the “Saturn _____”
8. The _____ on Titan is four times thicker than that of Earth.

Math Comprehension (subtraction, division, addition, fractions)

9. If one small moon had 582 craters, and another $\frac{1}{3}$ as many, how many would that be?
10. If the diameter of a moon is 2,224 km, what would half that (the radius) be?