Teaching Guide to *Shortcuts* by Jeff Harris

Introduction

Shortcuts by Jeff Harris is a beautifully illustgalaxyed, 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: AN EXPANDING LOOK AT GALAXIES

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

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

- Types of galaxies
- Galactic distances
- Viewing galaxies

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 is the closest galaxy to our Milky Way?
2. How far away is it?

Activity Ideas

- Galaxies are beautiful objects in space. Think of a way to display some images of galaxies. You could draw/paint/create one or more on paper, poster board, or a computer. Images could be collected from magazines or the Internet. Afterward, try to classify them as spiral, elliptical or irregular.
- Galaxies are so huge that it's hard to imagine their size. Use this video on the Internet to examine our place/size within the Universe. Www.powersof10.com/film

Use the News

- Are there any galaxies we can see with unaided eyes or just binoculars? Research and write a brief news article explaining how and where to look in your night sky for one or more galaxies.

Answers to the Quiz

1.) b, 2.) c, 3.) a, 4.) b, 5.) b, 6.) c , 7.) milk, 8.) Superclusters 9.) 24 million, 10.) 8

Quick Quiz — Galaxies

1. Galaxies are usually isolated in space.
a. True b. False

2. _____ galaxies are shaped like spheres or flattened spheres.
a. Spiral b. Irregular c. Elliptical d. Milky Way

3. Most spiral galaxies have a huge bulge in their centers.
a. True b. False

4. There are _____ main types of galaxies.
a. two b. three c. five d. seven

5. A galaxy group is much larger than a galaxy cluster.
a. True b. False

6. Edwin _____ was an American astronomer who discovered our galaxy was not the only one in the universe.
a. Cook b. Galileo c. Hubble d. Sagan

Vocabulary Comprehension

7. The word "galaxy" comes from the Greek word for _____.

8. _____ are the largest structures in the universe.

Math Comprehension (subtraction, division, addition, fractions)

9. If it takes 240 million years for us to orbit around the Milky Way, how long is 1/10 that?

10. 32 galaxies divided into 4 equal groups would have how many in each group?