

# 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 3<sup>rd</sup> to 4<sup>th</sup>, 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: SEARCHING FOR EXOPLANETS**

For release the week of: December 24, 2012

**Objective:** After completing the exercises, students should have a better understanding about exoplanets.

**Subject Areas:** The following information about exoplanets will be discussed:

- Naming exoplanets
- Distances to exoplanets
- Why search for them?

**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 there any names for exoplanets?
2. What do exoplanets look like? Are there pictures?

## **Activity Ideas**

- Exoplanets are hard to detect because they are so far away. How far away is the nearest star to Earth? Does it have an exoplanet? How far away is the closest exoplanet to Earth? How long would it take our fastest spaceship to get there? Here's a video describing the scale of distance to the nearest star.  
<https://www.khanacademy.org/science/cosmology-and-astronomy/v/scale-of-distance-to-closest-stars>
- Exoplanets Earth's size orbiting stars similar to our sun may have the ability to sustain life. Scientists are searching for these types of planets. Here's a short presentation explaining some of the facts about this search. <http://exep.jpl.nasa.gov/ave/> The presentation is just one of several TED youth presentations; the exoplanets talk occurs at 3:15 minutes into the video. All the talks are worthwhile to watch.

### **Use the News**

- Exoplanets exist outside our solar system. If we think on a much smaller scale, think about what countries exist elsewhere on Earth. Have you ever visited another country? How was it different/the same as your country? Read the newspaper for articles about other countries. Find them on a map. How far away are they from you? Research and learn what it might be like to live in one of them.

## **Answers to the Quiz**

1.) b, 2.) c, 3.) a, 4.) d, 5.) b, 6.) c , 7.) orbit, 8.) discovered, 9.) 99.9999%, 10.) 3.5

## Quick Quiz — Exoplanets

1. Most exoplanets are found orbiting giant stars.  
a. True b. False
2. Telescopes in space, such as the Spitzer or \_\_\_\_\_ Space Telescope have taken pictures of exoplanets.  
a. Mayor b. Enterprise c. Hubble d. Galileo
3. Looking for an exoplanet is difficult for astronomers.  
a. True b. False
4. Our galaxy is called the \_\_\_\_\_.  
a. Solar system b. Andromeda c. Great Bear d. Milky Way
5. Many exoplanets are found very close to Earth.  
a. True b. False
6. The first exoplanet was discovered in \_\_\_\_\_.  
a. 1776 b. 1908 c. 1992 d. 2002

## Vocabulary Comprehension

7. Planets circle or \_\_\_\_\_ a star.
8. As of Dec. 1, 2012, more than 800 confirmed exoplanets have been \_\_\_\_\_.

## Math Comprehension (subtraction, division, addition, fractions)

9. Which is more sure: 99% or 99.9999% sure?
10. What is the average of 5,5,3,2,2,4?