

# Teaching Guide to *Shortcuts* by Jeff Harris

## Introduction

*Shortcuts* by Jeff Harris is a beautifully illustration and steeled, 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: A HARD LOOK AT IRON AND STEEL**

For release the week of: June 11, 2012

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

**Subject Areas:** The following information about iron and steel will be discussed:

- Characteristics of iron and steel
- Differences between bronze and iron
- Blacksmith basics

**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 metals or other materials are stronger than steel?
2. At what temperature does iron or steel melt?

## **Activity Ideas**

- What is bronze? How did bronze weapons and armor compare to iron? Why did people choose to make more things out of iron after the Bronze Age? Was iron better? In what ways? Research and explain.
- A blacksmith molds, pounds, and forms metal, such as iron, into tools and art. Take a look at the craft of the blacksmith with this video and others you can find.  
<http://www.youtube.com/watch?v=LQaaS71yfvM&feature=related>

### **Use the News**

- Steel is used in many tools, objects, toys, vehicles, etc. that we use every day. Go on a newspaper scavenger hunt to find as many of these items mentioned /shown in a newspaper. You could write them down, or cut and paste them onto a collage.

## **Answers to the Quiz**

1.) a, 2.) a, 3.) a, 4.) c, 5.) a, 6.) a, 7.) Iron Age, 8.) steel 9.) 48, 10.) 36 in.

## **Quick Quiz — Iron and Steel**

1. Humans began using the iron found in meteorites to make tools and weapons more than 6,000 years ago.  
a. True b. False

2. \_\_\_\_\_ iron is a rigid type of iron that is used to make objects like cooking pans and pipes.  
a. Cast b. Pig c. Wrought d. Steel
3. Scientists believe the core of our planet is made of iron.  
a. True b. False
4. Steel is made by combining iron with another element, usually \_\_\_\_\_.  
a. tin b. copper c. carbon d. silver
5. China produces more iron and steel than any other country.  
a. True b. False
6. Today, iron and steel are two of the \_\_\_\_\_ metals in the world.  
a. least expensive b. most expensive c. most rare d. most valuable

## Vocabulary Comprehension

7. The term \_\_\_\_\_ \_\_\_\_\_ refers to a period after the Bronze Age when humans created tools and weapons made of iron.
8. Most of the iron produced in the world is used to make \_\_\_\_\_.

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

9. If 98 tons of iron were needed to build a bridge, but only 50 tons of steel were needed, how many tons were left over?
10. If a 72-inch steel bar were cut in half, how long would each half be?