

# 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: MAKING THE ROUNDS WITH WINDMILLS**

For release the week of: November 25, 2013

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

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

- Sizes and uses of windmills
- Making a simple windmill
- Types of windmills

**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. How large are the biggest wind turbines? Try to find pictures to get a real idea about their size.
2. How useful are “backyard” wind turbines to power your home?

## **Activity Ideas**

- Making a model windmill is easy. A toy pinwheel is an example of a simple windmill. Here's a video explaining how to make a pinwheel. The video goes on to mount the windmill and calculate the power it can create. You could just use the initial instructions to create the pinwheel and just mount it on a large straw or pencil with a pushpin. For more advanced work, follow the rest of the instructions to learn about how windmills create power. <http://science.wonderhowto.com/how-to/construct-model-windmill-and-calculate-its-power-259781/>
- What's the difference between a vertical and a horizontal windmill? Is one better than the other? Research and report on some of the various types of windmills.

## **Use the News**

- Wind power is an example of a type of “green,” or renewable, energy. What does this mean? What types of energy are not renewable? What other types of energy are renewable? Read the newspaper and take notes on any information about “green”, “renewable”, fossil fuels, wind turbines, etc. Discuss what the reporter was trying to convey with the article.

## **Answers to the Quiz**

1.) a, 2.) d, 3.) b, 4.) b, 5.) a, 6.) a , 7.) mechanical, 8.) farm, 9.) 120 , 10.) 7 ft.

## Quick Quiz — Windmills

1. The first windmills were used in the Middle East.  
a. True b. False
2. The spinning blades of a windmill are called \_\_\_\_\_.  
a. wings b. fins c. walls d. sails
3. Windmills were never used in Europe.  
a. True b. False
4. A \_\_\_\_\_ is at the back of a windmill and helps it face the wind.  
a. sail b. fantail c. turbine d. generator
5. Early windmills spun around a vertical pole.  
a. True b. False
6. Modern windmills used to generate electricity are called wind \_\_\_\_\_.  
a. turbines b. motors c. machines d. sails

## Vocabulary Comprehension

7. A windmill can transfer wind energy into \_\_\_\_\_ energy that can turn an electrical generator.
8. A group of wind turbines is called a wind \_\_\_\_\_.

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

9. How many times will a windmill spin in a minute if it spins twice every second?
10. If one windmill is 21 ft. tall and another is only  $\frac{1}{3}$  that size, how tall is the smaller one?