

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: GETTING TO THE BOTTOM OF RAINBOWS

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

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

- Rainbow colors
- Creating rainbows
- Drawing rainbow arcs

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. Think of several methods to remember the order of colors in a rainbow.
2. Can a rainbow form around the moon?

Activity Ideas

- You may have seen a rainbow when a water hose was sprayed into the air. The water droplets broke up the white light into colors. A pool of water can also do this. Try this experiment: Set a small mirror in a bowl or tub of water so the sun can reflect off of it onto a wall. What do you see? What happens when you stir the water?
- A rainbow forms in the shape of an “arc.” An arc is like a piece of a circle. Can you think of a way to draw a perfect set of arcs on some paper to color a rainbow? How could you use some string, a push tack (or tape), and pencil to draw a piece of a circle across some paper to form a rainbow? Brainstorm and try some ideas.

Use the News

- No two people see the exact same rainbow. No two people remember an event exactly the same. Choose a news story from the newspaper and use your creativity to rewrite the story from another person's viewpoint. How might someone else remember the same event differently?

Answers to the Quiz

1.) a, 2.) a, 3.) a, 4.) b, 5.) b, 6.) c , 7.) circle, 8.) refracts, 9.) 90 degrees, 10.) 34

Quick Quiz — Rainbows

1. Most rainbows appear at the beginning or end of the day.
a. True b. False
2. The outer edge of a primary rainbow is _____ and the inner edge is violet.
a. blue b. yellow c. green d. red
3. The shadow of your head is at the center of every rainbow you see.
a. True b. False
4. The center of a rainbow is called the _____ point.
a. solar b. antisolar c. vertex d. arch
5. There are an endless number of colors found in a rainbow, but most people describe the colors in a rainbow as red, orange, brown, green, blue, indigo and violet.
a. True b. False
6. A supernumerary rainbow is a rare type of rainbow that has several _____ and fainter rainbows on the inside edge of the primary rainbow.
a. brighter b. larger c. smaller d. wider

Vocabulary Comprehension

7. If you are in an airplane, a rainbow appears as a full _____ with the shadow of your airplane at the center.
8. When sunlight enters a raindrop, the raindrop acts like a prism and _____, or bends the light.

Math Comprehension (subtraction, division, addition, fractions)

9. If you add 48 degrees to a 42-degree angle, what would the new angle measure?
10. If 278 raindrops hit the ground, out of 312 that fell from a cloud, how many dried up and disappeared in the air?