

# Caves & Karst *Natural Inquirer* • Reflection Section Answer Guide

## Tropic Topic

### Introduction

Examine figures 7-9. The northern wet karst forests contains mogote landforms, and the southern dry karst forests have ridges and pavement landforms. Do you think the soil chemistry is similar between these two karst areas? Why or why not? *Students will have individual answers to this question. Because they are unlikely to have experience or knowledge of karst, they are being asked to make an educated guess about the difference between karst soils. Because both regions are karst, they are composed mainly of limestone. Therefore, their soil chemistry is similar.*

Do you think that trees in the southern dry karst forests use water more efficiently than the trees in the northern wet karst forests? Why or why not?

*Students will have individual answers to this question. As in the previous reflection question, students will need to make an educated guess.*

### Methods

Leaves have small openings called stomata. Gases, including water vapor, exit leaves through the stomatal openings. How do you think stomata respond in drier environmental conditions?

*Students will have individual answers to this question. When environmental conditions are dry, stomata close to prevent water from exiting the leaf.*

Why do you think soil is built slowly in the southern dry karst forest of Puerto Rico in figure 9? *Students should be encouraged to think about the differences between wet and dry areas. In dry areas, trees and leaves are generally smaller*

*than the larger trees and leaves of wet forest areas. This contrast means that less leaf material falls to build soil.*

### Findings

Based on the findings, what are the two main differences between the chemical content of leaves in Puerto Rico's northern wet and southern dry karst forests?

*Dry karst forest leaves contain more potassium and Carbon-13 than wet karst forest leaves, and they use water more efficiently than wet karst forest leaves.*

How are the differences you identified in the first "Findings" reflection question above advantageous to southern dry karst forests? *These differences are adaptations that enable trees in dry karst forests to thrive in dry environmental conditions.*

### Discussion

Puerto Rico has a rainforest in its northeastern region. The Puerto Rican rainforest contains large trees and thick vegetation. Based on this research, what might be one difference between the northern wet karst region and the rainforest of Puerto Rico?

*Students should be reminded that karst landscapes are found in areas with limestone. These areas contain shallow soils. Students should guess that limestone limits the size of trees growing in limestone areas. Students should also guess that the rainforest does not grow in an area with limestone.*

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Plants adapt to their environmental conditions. Do you think the presence of more Carbon-13 in the southern dry karst region is an adaptation? If so, to what environmental condition are the trees adapting?

*Students should guess that the increased presence of Carbon-13 is an adaptation that trees use to respond to drier conditions in the semi-arid karst region of Puerto Rico.*