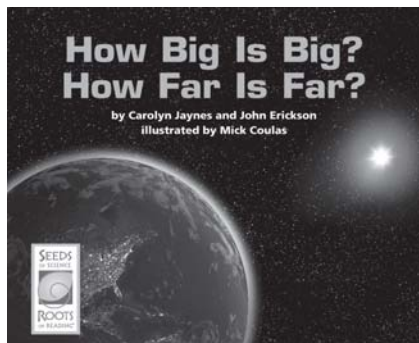


Using the Cognates Strategy

with *How Big Is Big? How Far Is Far?*
from *Seeds of Science/Roots of Reading*®



Introduction

This strategy guide introduces an approach for making students aware of cognates (words that have similar pronunciations, spellings, and meanings across languages) in content-rich texts. The ability to use cognates is a particularly powerful strategy for helping Spanish-speaking English Language Learners access information in text and build English fluency. This guide includes an introductory section about the strategy of using cognates, a general overview of how to teach this strategy with many science texts, and a plan for introducing cognates with the *Seeds of Science/Roots of Reading*® book *How Big Is Big? How Far Is Far?*

Book Summary

How Big Is Big? How Far Is Far? is about relative size and distance in our Solar System. Varied examples presented through illustrations, diagrams, and data tables help readers consider size and distance. Readers learn that *big* and *small* depend on what is being compared. For example, Earth is huge compared to a person and small compared to Jupiter. Jupiter, in turn, is small compared to the Sun! Readers are invited to ponder the vast distances in space. For instance, the distance from the Sun to Earth is quite far, yet this distance seems relatively close when considering the distance between our Sun and other stars. This book invites readers to think about our place in our Solar System and to try to visualize the vastness of space.

Science Background

Understanding concepts of size and distance in space is difficult. This is because objects in space and the distances between them are so much larger than anything we experience in our everyday lives. The sizes and distances of objects in our Solar System are immense. The Sun is, by far, the largest object in our Solar System. Our Solar System also includes eight planets: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, and Neptune. The size of an object depends on what it is being compared with. Earth seems huge to us, but it is actually a small planet compared to the outer planets. For instance, Jupiter is 11 times as wide as Earth, and the Sun is 10 times as wide as Jupiter! Although the sizes of the Sun and the planets are huge, the distances between these objects make their sizes seem relatively small. The distance from the Sun to Neptune is about 4.5 billion kilometers. The distance from the Sun to the next closest star is an incredible 40 trillion kilometers! To help understand how enormous this distance is, consider the fact that it takes the light from this star over four years to reach Earth.

About This Book

Reading Level

Guided Reading Level*: Q

Key Vocabulary

claim, diagram, diameter, planet

Text Features

bold print, bullets, captions, diagrams, glossary, illustrations, labels, photographs, tables

*Guided Reading Levels based on the text characteristics from Fountas and Pinnell, *Matching Books to Readers*.

About the Cognates Strategy

Cognates are words that have similar spellings, pronunciations, and meanings across two or more languages. When students are taught to recognize words as cognates, they are better able to access unfamiliar English words and understand what they read. The cognates strategy supports English Language Learners (ELLs) in using their native languages as a resource for learning new academic words in English. The cognates strategy is most helpful for students who speak Latin-based languages, such as Spanish, French, Italian, Portuguese, and Romanian. Connecting students' native languages to the scientific language they are learning in school is a powerful way to support the development of academic English. In addition, many science words in English are a special kind of cognate in Spanish—the Spanish version of the word is a common word, and the English version is a more specialized science word (e.g., *sol/solar*; *ácido/acid*). While the cognates strategy supports ELLs, this strategy is also useful for English-only students. Since the origins of many science words are Latin, cognates can help students identify shared roots or affixes.

Teaching the Cognates Strategy

The following guidelines can be used to teach the cognates strategy with any science text.

- Select a text and identify several cognates. If necessary, have a bilingual colleague help you compile a list of these words and model correct pronunciation. Focus on those cognates that are most related to the main ideas in the text.
- Before reading, tell students that cognates are words that have similar spellings, pronunciations, and meanings in two or more languages. Point out that recognizing cognates can help students understand English words.
- Write a Latin-based language cognate on the board (see the box on this page for ideas) and read it, or ask a student to read it, aloud: “Inventar.” Ask students to think of an English word that looks and sounds like the cognate. [Invent.]
- Have students think about what the two words (*invent* and *inventar*) mean. Ask a student who

English–Spanish Cognates

English	Spanish
invent	inventar
dentist	dentista
map	mapa
necessary	necesario

knows both languages to use each word in a sentence.

- Ask students to think about the meaning of related English words (e.g., *inventions*, *inventor*) and to provide example sentences.
- Identify cognates in the text you have selected using one of the following approaches:
 - a. On the board, write a list of cognates from the text. Have a student who can read the cognates in his native language read the words aloud. Have all students search through the text for the English counterparts. Discuss the words' shared meaning.
 - b. Have ELLs find as many cognates in the text as they can. Remind students to listen to the pronunciation of each word and look at its spelling to identify the word as a cognate. You may wish to have students use the Cognates copymaster (included in this guide) to record cognates they find. If students do not mention the conceptually important words you identified from a given text, introduce those as well.
- Begin a class list of cognates. Include cognates from different languages spoken by the students in your class. The list can serve as a reference that students add to over time.
- Once students are familiar with cognates, address false cognates—words that sound and look the same, but do not share similar meanings (e.g., in Spanish, *carpeta* means folder, not carpet). Note that although very few words are false cognates, it is still important for students to know about them. Invite ELLs to create sentences (in both languages) where each of the false cognates is used in context.

English words	Spanish words
compared	comparado
depend	depende
space	espacio
planets	planetas
kilometers	kilómetros
Solar System	Sistema Solar
diameter	diámetro
million	millón
objects	objetos
distance	distancia
temperature	temperatura
diagram	diagrama
illustration	ilustración

Using the Cognates Strategy with *How Big Is Big? How Far Is Far?*

How Big Is Big? How Far Is Far? provides opportunities for Spanish-speaking ELLs to learn to use cognates as a resource for understanding science concepts and for learning new science words.

Getting Ready

1. Make a copy of the Cognates copymaster for each student.
2. On the board, create a table like the one shown above, filling in only the “Spanish words” column. Leave the “English words” column blank. (Student responses are in green for your reference.) Cover the list until students have read the book once through.

During Class

1. Introduce *How Big Is Big? How Far Is Far?* by telling students that the book will help them visualize how big and far away planets in our Solar System are. Tell the Spanish-speaking ELLs that they may notice some words in the book that look and sound like Spanish words.
2. Read *How Big Is Big? How Far Is Far?* in a way that is consistent with your classroom routines, giving students as much independence as possible.

3. Reveal the list of Spanish cognates. Point to the first word, *comparado*. Have students think about an English word that looks and sounds like the Spanish cognate. [Compared.] Ask students to turn to page 3 and read the sentence that first uses the word *compared*. Provide a different context for the word, such as *Most teachers are tall compared to their students*. Have students think about what the word means in Spanish and in English. On the board, write “compared” in the “English words” column.
4. Ask students to think about the meaning of the next Spanish cognate on the list, *depende*. Ask a Spanish-speaking ELL to use *depende* in a sentence in Spanish. Have that student or another student translate the sentence into English.
5. Ask students to locate and read the sentence on page 5 with that English cognate. Discuss what *depende* and *depend* mean and point out how knowing what the word means in Spanish can help you understand the idea in the book—that size depends on what you are comparing something to. Write “depend” in the “English words” column on the board.
6. Distribute one Cognates student sheet to each student. Have students read and record each of the remaining Spanish words from the table on the board onto their student sheets. Students should then search through *How Big Is Big? How Far Is Far?* for each word’s English counterpart and write it in the appropriate space on their student sheets. They should also record the page number on which they find each English word.
7. Ask students to reflect on how using cognates helped them understand the ideas in the book. Emphasize that this strategy can be useful whenever they read.

Independent Extension

Challenge students to write sentences that contain two of the cognates from the table. Each sentence should convey an important idea from *How Big Is Big? How Far Is Far?* Ask English Language Learners to write the sentence in their native languages as well, if they are comfortable doing so.

Name _____ Date _____

Cognates

Title of book: _____

Page number	English words	_____ words

About Strategy Guides

A six-page strategy guide is available for each *Seeds of Science/Roots of Reading*® student book. These strategies support students in becoming better readers and writers. They help students read science texts with greater understanding, learn and use new vocabulary, and discuss important ideas about the natural world and the nature of science. Many of these strategies can be used with multiple titles in the *Seeds/Roots* series. For more information, as well as for additional instructional resources, visit the *Seeds/Roots* Web site (www.seedsofscience.org/strategyguides.html).

Available Student Books for Grades 4–5

Eighteen engaging student books are now available, each with a corresponding strategy guide. The books are part of the *Seeds of Science/Roots of Reading*® curriculum program described on page 6. Nine *Aquatic Ecosystems* student books and strategy guides will be available in summer 2010.

<i>Planets and Moons</i>	
Strategy	Student Book
Connecting Science Words and Everyday Words	<i>Exploring Planets and Moons</i>
Using Science Text to Visualize	<i>Spinning Through Space</i>
Taking Notes Based on Observations	<i>Observing the Moon</i>
Using the Cognates Strategy	<i>How Big Is Big? How Far Is Far?</i>
Teaching Scientific Comparison Writing	<i>Handbook of Planets and Moons</i>
Using Discourse Circles	<i>What About Pluto?</i>
Teaching About How Scientists Use Models	<i>Planetary Scientist</i>
Using Anticipation Guides	<i>Tomato Landers</i>
Promoting Word Consciousness	<i>Technology for Exploration</i>
<i>Chemical Changes</i>	
Strategy	Student Book
Teaching Scientific Explanation Writing	<i>Chemical Reactions Everywhere</i>
Posing Investigation Questions	<i>Handbook of Chemical Investigations</i>
Teaching Text Structure	<i>What Happens to the Atoms?</i>
Teaching Procedural Writing	<i>Bursting Bubbles: The Story of an Improved Investigation</i>
Promoting Word Consciousness	<i>Communicating Chemistry</i>
<i>Models of Matter</i>	
Strategy	Student Book
Teaching Summary Writing	<i>Made of Matter</i>
Using Roundtable Discussions	<i>Break It Down: How Scientists Separate Mixtures</i>
Interpreting Visual Representations	<i>Phase Change at Extremes</i>
Teaching About How Scientists Make Inferences	<i>Science You Can't See</i>

Extend Learning with *Seeds of Science/Roots of Reading*®

The strategy featured in this guide is drawn from the *Seeds of Science/Roots of Reading*® curriculum program. *Seeds/Roots* is an innovative, fully integrated science and literacy program.

The program employs a multimodal instructional model called “Do-it, Talk-it, Read-it, Write-it.” This approach provides rich and varied opportunities for students to learn science as they *investigate* through firsthand inquiry, *talk* with others about their investigations, *read* content-rich books, and *write* to record and reflect on their learning.

Take advantage of the natural synergies between science and literacy instruction.

- Improve students' abilities to read and write in the context of science.
- Excite students with active hands-on investigation.
- Optimize instructional time by addressing goals in two subject areas at the same time.

To learn more about *Seeds of Science/Roots of Reading*® products, pricing, and purchasing information, visit www.seedsofscience.org



Planets and Moons Science and Literacy Kit



Developed at Lawrence Hall of Science
and the Graduate School of Education
at the University of California at Berkeley.

Seeds of Science/Roots of Reading[®] is a collaboration of a science team led by Jacqueline Barber and a literacy team led by P. David Pearson and Gina Cervetti.

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