

A Science Reader's Guide to CORKS

Readings from "Ocean Drilling Program Highlights"

Summary

Students read several articles about seafloor observatories to gain an understanding of their purpose and the kinds of data they collect.

Learning Objectives

Students will be able to:

- Explain their understanding of the function of CORKS
- Discuss the content of these articles with their peers

National Science Education Standards

Standard A: Science as Inquiry

Standard D: Earth and Space Sciences

Ocean Literacy Essential Principles

2. The ocean and life in the ocean shape the features of Earth.
7. The ocean is largely unexplored.

Target Age: Undergraduate

Time: One class period

Materials

Be sure to have plenty of the following on hand:

- Copies of the following articles (attached) from the *Ocean Drilling Program Highlights* document: *Borehole Observatories Monitor Active Hydrology Beneath the Seafloor*, *Subseafloor "Rivers" of Fluid and Heat*, and *Watching Plates Move with CORK Observatories*
- Maps of the ocean floor with distinguishable geological features
- Blank copies of the *Reader's Guide Analysis* page (attached)
- Highlighters
- Geological dictionaries; physics, chemistry, and/or earth science texts and references

Background

CORKS first caught my imagination because that's exactly what they are—huge corks in holes in the bottom of the sea—and there's just something kind of crazy about that. I read about CORKS, heard lectures from scientists who installed them, and even saw CORKS ready for deployment onboard the *JOIDES Resolution* drill ship, but I didn't really take the time to understand the CORK "cool factor" until I traveled 2660 meters below sea level in the *DSV Alvin* to see a couple of CORKS in action.

Maybe you're thinking, "what holes in the seafloor, and why do those holes need corks?" You'd rather make a sandwich than read about this. "And what do the holes and the corks have to do with science...or with me?" Three short articles about CORKS and what they do are provided here. The articles were written by scientists for scientists and assume the reader has some experience with earth and ocean science. However, you don't have to be a scientist to learn something from them if you simply apply a few critical reading skills.

— Leslie Peart, *RV Atlantis*, September 2007

What To Do

Very simply, any or all of these articles can be read and analyzed independently during class or as homework. Time allowing, however, the following method can yield a lively and provocative class discussion!

1. Divide into groups of three or four students. Distribute one article per group; making sure each student has his/her own copy.
2. Read the article assigned to your group and complete the *Reader's Guide Analysis*.
3. When each group member has finished reading and completed a *Reader's Guide Analysis*, regroup to compare and discuss your findings. Discuss your answers until you can agree on just one answer for each question.
4. Record the answers your group has discussed on a clean *Reader's Guide Analysis* page. Be prepared to share your analysis with the rest of the class through a short presentation.

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Analysis

1. Complete the following for the *Ocean Drilling Program Highlight* article you are reading:

Title:

Author(s):

Location of the CORKS discussed in the article:

2. Locate the CORK site on a map of the seafloor. What geological features can be found at the site(s)?
3. Read the article through from beginning to end. Highlight and/or underline new words and ideas or statements that are yet unclear to you.
4. Summarize or paraphrase the CORK design and research methods described by the author(s). Re-read the methods until you can distill or explain at least some portion of the work.
5. Summarize the research conclusions in your own words. You may need to refer to the graphs, charts, and illustrations. They're full of useful information and may be easier to understand.
6. Use geology, physics, and chemistry texts; dictionaries and other references to look up all the new terminology you listed or highlighted in step 3, above.