



Activity of the Month – April, 2009

Get Onboard the *JR*

Using the *JOIDES Resolution* Website

Summary

In this activity, students explore the adventures of current scientific ocean drilling research taking place onboard the *JOIDES Resolution (JR)* using the variety of resources available on the ship's website (www.joidesresolution.org). The renovated *JR* set sail in March 2009 to collect a new round of deep sea cores to study questions about Earth's history, climate, and more. The *JR* website follows the ship's activities and allows visitors to learn how the science is conducted, why it is important, what it's like on a scientific vessel, and the different careers involved – through blogs, Ask a Scientist, ship videos, a position tracker, content pages, games, and more.

Learning Objectives

Students will be able to:

- Explain how and why scientific ocean drilling science is conducted
- Describe the types of questions asked and data collected on board the *JR*
- Describe what life is like onboard the *JR*
- Investigate different careers represented on the *JR*

National Science Education Standards

Content Standard D: Earth and Space Science

Content Standard E: Science and Technology

Content Standard G: History and Nature of Science

Target Grade: 7-12

Time: 1 - 2 class periods

Materials: Computers with Internet access

Background:

The *JR* takes core samples and measurements from under the ocean floor, giving scientists a glimpse into Earth's development and also a scientific means of measuring climate and environmental change throughout a significant part of our planet's history. The *JR*'s core samples are the "smoking gun" in evaluating many historical events—like the extinction of the dinosaurs, for example.

From 2006-2008, The *JR* was completely retrofitted with exciting new scientific equipment, new structural improvements, and significant upgrades. It is almost a whole new ship!

The vessel is named for the *HMS Resolution*, commanded by Captain James Cook over 200 years ago, which explored the Pacific Ocean, its islands, and the Antarctic region. Like its namesake, the purpose of our current *Resolution* is to sail for scientific exploration. This time, those discoveries lie beneath the ocean floor.

Work aboard the ship never ceases; operations continue 24 hours a day. The *JR*'s complement can consist of 50 scientists and technicians and 65 crew members. The *JR*'s science party is specific to each mission, with skills and science disciplines chosen especially to best achieve the Expedition's goals.

What to do

Introduction – Use the videos located in the Multimedia section of the *JR* website to give students brief background information about how scientific ocean drilling is conducted, why it's important, and its history. The videos can also be used to help students think of questions to explore on the website or develop questions to ask the scientists onboard.

Open Exploration Activities – Have students use the various features on the *JR* website to explore one or more of the questions posted below, then share what they learned through written summaries or oral reports.

- **What does the *JR* do?** Look for the special features of the *JR* that make it a scientific ocean drilling ship, how dynamic positioning works, what cores are, the types of lab facilities onboard, and why this research is important.
- **What do scientists onboard the *JR* study?** Look for how researchers do their work; the types of questions they investigate, the types of data they collect, how they collect that data, the ways they communicate, etc.
- **Where is the *JR* and what is she up to?** Find out the goals and route of the current expedition.
- **Who sails on the *JR*?** Find out what types of scientists are at sea and the other types of people necessary for a safe and successful voyage.

Special Feature Activities

The Daily Blogs – The Daily Blogs are one of the most dynamic and informative features of the website. Posted by various crew members throughout each Expedition, the blogs provide insight on the science being done, experiences living on a ship, unusual happenings, who the people are, and more. Bloggers also post challenge questions that visitors can tackle. Students can select an individual or explore multiple blogs to:

- Learn about the science being conducted such as; the questions, observations, data collected, and challenges.
- Discover the true process and nature of science. For example, how science:
 - Is an ongoing process of discovery
 - Relies upon observations and data
 - Involves testing hypotheses
 - Requires creativity and problem solving
 - Is collaborative
 - Is fun and often challenging
 - Can be unpredictable
- Explore what daily life is like on a scientific vessel.
- Learn about the backgrounds and career interests of people onboard.
- Have students write their own blog about how science was part of their day, e.g. What observations and inferences did they make, what did they do, what was fun, challenging, etc.

Ask a Scientist – Scientists on board are available to answer questions while they are out at sea. Use the Ask a Scientist form to develop and post questions related to:

- What it is like being a scientist
- How to become a scientist
- What it is like sailing on the *JR*
- The type of research currently being conducted

Ship Videos – While on board, crew members are producing videos to share the adventure. Visit the YouTube button at the bottom of the Home page to explore what they have to show. Use the Ship Videos to learn about the expedition's goals and objectives, get updated tours of laboratories and other parts of the ship, and explore stories and interviews with various crew members on board.

JR-Pardy – This is a special quiz game where students find correct questions to answers that are about science and the *JR*. Categories include; The *JR*, Deep Sea Drilling, Under the Sea, Science, Sea Stories, and The Earth. Use this feature to challenge students' content knowledge on these topics.

Science and Science Careers – In the Discovery section of the website, there is a career interactive designed to help students learn more about the non-scientific crew who work onboard. Have students use this feature to explore these careers.