

Introduction to Ocean Challenge Live!

Purpose of Ocean Challenge Live!

On September 16, 2001, Captain Rich Wilson and co-skipper Bill Biewenga will embark on a 14,000-mile voyage on the trimaran *Great American II* from New York City, USA to Melbourne, Australia. They are setting out to challenge the record set in 1856 by *Mandarin*, which completed the voyage in 69 days, 14 hours. At the time that *Mandarin* set the record, she was one of hundreds of vessels carrying fortune hunters to Australia when gold was discovered in the mid-19th century. Rich and Bill are racing against *Mandarin*'s record to bring the excitement of the voyage to classrooms and schools around the world via the Internet at <http://www.sitesalive.com>.

Their efforts, however, are not being made solely for the sake of breaking the record.

A Brief History of The Australian Gold Rush

In 1851, a disappointed Englishman, Edward Hammond Hargraves, gave up gold prospecting in California and returned to Australia where he'd emigrated from Britain twenty years before. In two years, he'd had little success in the Sacramento goldfields, but he took back to Australia a vision and a thorough knowledge of how to search for alluvial gold deposits, a knowledge not then common outside of America.

During his fruitless search for the big strike in California, Hargraves had observed a marked similarity between the Sacramento terrain where other prospectors had hit pay dirt and a valley he used to roam back in his adopted homeland. It was a vision that was to change not only Hargraves' fortunes but the history of Australia itself.

Within days of arriving back in Australia, Hargraves set off for the region that had haunted him throughout his California sojourn. Camping along a tributary of the Maquarie River, he later wrote, "I felt myself surrounded by gold." In fact, he was, here and later at another site, Lewis Ponds Creek, where, at last, he made his first major strike. Within months the region was inundated with men who had abandoned their jobs and homes in the surrounding territory in hopes of striking it rich in the newly hatched gold fields. Later, they would be joined by thousands of others from abroad, including many Americans whose lust for gold had not been sated by their California experience.

The Australian gold rush was on!

The exodus of Australians who left behind their jobs and families as they went in search of gold was especially acute in the newly established colony of Victoria, on Australia's southeast coast. Distressed that the fledgling colony's population was rapidly diminishing as thousands set off in search of gold, a citizens committee sought to alleviate the crisis by offering 200 pounds to the first person to discover gold in the region of Victoria's capital city of Melbourne.

In quick succession, starting in July 1851, gold was discovered in the surrounding communities of Clunes, Bendigo, Mount Alexander, and Ballarat, all within a hundred miles of Melbourne. By the end of 1851, more than 25,000 prospectors were scouring the Victoria goldfields, and tons of gold were being extracted. Soon, Victoria was the continent's greatest source for the precious metal. From the first few grains panned by Hargraves, gold production over the next century grew to a level that eventually placed Australia among the world's top gold producers.

As fortune hunters rushed in, the continent's stagnant population problem soon vanished. In 1852 alone, an estimated 100,000 emigrants entered the country. Within a decade of Hargraves' discovery of gold, the population of Australia as a whole is estimated to have grown from 500,000 to 1.5 million. This huge infusion of emigrants, free men with strong entrepreneurial spirit, radically changed the social dynamic of Australia, which had been founded chiefly as a penal colony.

***Mandarin* Captain John Parritt**

John Parritt, Captain aboard *Mandarin*, joined the vessel in her third year, relieving Captain Stoddard, who had been with the ship since her launching in 1850.

During Captain Parritt's years of command, *Mandarin* made many memorable passages. While she sailed outward bound from New York to California by way of Cape Horn on three voyages, she sailed directly to China on six voyages. All of her homeward bound voyages were returning from China.

Captain Parritt sailed twice for Melbourne: first, from Norfolk, Virginia, in 1854, during which voyage, she sprung her mainmast early on so that she could not carry full sail, and arrived in the still respectable time of 106 days; and second, on her record passage from New York in 1855–6, arriving in 69 days 14 hours.

Captain Parritt commanded *Mandarin* for 10 years until she was lost, homeward bound from China, when she struck an uncharted reef in the South China Sea. All passengers and crew were rescued by the steamer *Ambon*.

Ocean Challenge Live! – Program Components

The descriptions below highlight the various components of *Ocean Challenge Live!* and how these components can be used to enhance students' experiences as they follow the voyage of *Great American II*.

Computer Connection

Updates of the 2001 voyage are available in *Ocean Challenge Live!* on the sitesALIVE! website at <http://www.sitesalive.com>. You can access a rich variety of live content materials from this website including:

- Captain's Log, Boat Position, Boat Log, Audio Report (updated daily)
- Questions & Answers (Updated three times/week)
- Essays, Journals, Photos (Updated Weekly)

These materials will allow Rich and Bill to share their experiences with the world. By visiting the website and combining the live content with the lessons in this Teacher's Guide, teachers can make this adventure a true educational experience for their students. Other materials available on the website include biographies of the crew, a boat tour, an active message board, a glossary, and information about sitesALIVE! and its partners.

Lesson Plans

Twelve weekly lesson plans have been designed to develop students' skills in math, science, social studies, language arts, art, and personal management and living. The classroom projects are designed so that students use the same important skills required of the *Great American II* crew: planning and teamwork. The complete twelve-week course of study can be organized around activities that are built into each lesson plan, or teachers can use activities as they see fit.

Lesson Plan Structure

Each lesson plan has the following activities: Introduction to the Lesson, Classroom Project, Home Connection, Map/Math Connection, Project Team Connection, and Using the Newspaper. Every lesson focuses on a theme that relates to the journey. This theme is supported by the class discussion and activities.

Student Projects

Student Projects are introduced in the Teacher's Guide. A detailed project guide is provided with each Student Project to help students complete the required tasks and assignments. Student teams conduct these projects throughout the voyage of the *Great American II*. Each Student Project team presents a detailed report on their work to the class once during the voyage. Brief Student Project summaries are presented on a weekly basis to the class.

Parent Involvement

Activities involving families and friends (Home Connection) are structured into the *Ocean Challenge Live!* lesson plans. Parents are encouraged to work with their children on the weekly activities and related projects. Many activities of these activities are discussion topics or short-term projects.

Newspaper Connection

Once a week students will use the newspaper to develop specialized reading and research skills. The weekly newspaper activities are coordinated with the lessons so that students will see a special connection between the newspaper medium and their own class work. Students participating in *Ocean Challenge II* will come away with a new appreciation of the value of the newspaper as an information source, as well as enhanced reading and research skills.

Lesson Plan Outline

Week 1 – Australia – Exploration, History & Literature

Theme: Historical Perspective

Skills: mapping, journaling/logging, sequencing events, locating landmarks, and research

Week 2 – Getting Ready/Planning and Preparation

Theme: Vision and Motivation

Skills: research (website or publications), designing a model, calculating speed, mapping, using a log

Week 3 – Equator Crossing

Theme: Observing traditions, nautical traditions

Skills: making inferences, mapping, collecting data

Week 4 – Environment: Water and Air

Theme: Environmental Resource and Impact

Skills: fractions and decimal percents conversion, making a model, persuasive writing, graphing, mapping

Week 5 – Invisible Places

Theme: Describing Places

Skills: using an atlas or map, research, letter writing, using empathy, orienteering (using a compass)

Week 6 – Midpoint

Theme: Turning Point

Skills: using perspective, predicting, drawing (maps), research

Week 7 – Decision-Making

Theme: Making Decisions

Skills: decision-making, map-reading, data collection

Week 8 – Sea Life

Theme: Cycles and Chains (Ecosystems)

Skills: classifying, critical thinking, identifying cause and effect relationship, decision-making, inferring

Week 9 – Teamwork & Perseverance

Theme: The Team's Commitment

Skills: decision-making, collaborating, showing respect, research

Week 10 – Australia – Geography

Theme: Australia's Land Down Under

Skills: sculpturing, reading maps, collaborating

Week 11 – What We'll Miss

Theme: Describing Places

Skills: graphing, map reading, averaging, narrative writing

Week 12 – Defining Success

Theme: Defining Success

Skills: geography, math, writing, arts and humanities

Lesson Components

Each lesson contains the following components:

- Theme: A theme for the week relating to the journey.
- Interdisciplinary connections: A list of disciplines that the lesson plan incorporates. This list may include geography, math, science, history, art, architecture, social studies, language arts, and technology.
- Skills: The types of skills students will use as they work on the activities in the lesson. These will include academic, personal management, and social skills.
- Key Words: Words that are significant to the content of the lesson.
- Materials: Instructional materials needed to carry out the lesson plan. Certain materials are used on a regular basis and may not be suggested every time (e.g., a regional newspaper, the Position Map from the sitesALIVE! website, a globe or world map, and a large map of Australia showing physiographic features and major cities.
- Introducing the Lesson: A way to orient the students to the theme of the lesson. This is a discussion topic, demonstration, or activity.
- Classroom Project: A skill-building activity involving the use of projects and information about *Ocean Challenge Live!*.
- Home Connection: An activity that links the *Ocean Challenge Live!* lesson plan to family and friends at home.
- Map/Math Connection: A project or activity to develop students' knowledge of geography and their skills in making and using maps. These projects most often apply mathematics to the study of geography.
- Project Team Connection: Suggested team activities and presentations related to the weekly theme. Prior to the beginning of the *Ocean Challenge Live!*, organize students into teams that will work on specific projects. Although it is suggested that the teams regularly give a brief update of their topic, each week one designated team will give an in-depth classroom presentation on their topic or task to that point (the History Team will be first and will give their report during Week One). Student teams are provided specific guides and/or forms to help them fulfill their responsibilities and complete their project.
- Using the Newspaper: An activity that involves students using the newspaper. This activity is focused on the weekly theme.

Week 1 – Australia – Exploration, History & Literature

- Theme: Historical Perspective
- Interdisciplinary Connections: history, geography, social studies, language arts
- Skills: mapping, journaling/logging, sequencing events, locating landmarks, and research
- Key Words: gold rush, historical perspective, penal colony, Bathurst, New South Whales and Victoria, timeline, sea

- Materials:
 - Classroom Project: Roll of paper for time line, meter stick
 - Map/Math Connection: Blank blackline master of Australia, large physiographic (or overhead) map of Australia including major cities, bordering oceans and seas, history books, *Ocean Challenge Live!* website

- Introducing the Lesson:

Have students read A Brief History of the Australian Gold Rush at the beginning of this Teacher’s Guide. Locate Bathurst, in New South Whales, Australia, a location close to where Edward Hammond Hargraves discovered gold at Summer Hill Creek in 1851. Point out that Hargraves was a disappointed gold-digger returning from the state of California, in the United States. At the time, Australia was a penal colony for Britain. It was sparsely populated, and the British Government was trying to encourage business and industry from Britain and other countries to locate their operations in Australia.

Invite students groups (3-4 students per group) to research the following questions and then report their findings for a class discussion:

- (1) What methods might the British have used to lure new settlers to the sparsely populated penal colony of Australia prior to the discovery of gold?
- (2) Following the gold strike, Australia’s population increased three-fold in less than ten years. What were some civil problems that the Australian government faced with the influx of thousands of immigrants from several different countries?
- (3) In what other Australian colonies was gold found after the first strike?
- (4) There were numerous reports of greed and clashes among gold miners. What were some of the causes? Was the Australian military prepared for these?
- (5) Were the seaports prepared to handle the demands for goods (food, clothing, tools and shelter) and services (transportation to goldfields)?
- (6) The gold rush only lasted about ten years. What were some long-term changes that it brought to Australia?

Have the students write a journal or log as if they were a gold-seeker to New South Whales or Victoria. Perhaps they were on the clipper ship *Mandarin*. What course did they follow from their homeland? What problems did they face after they arrived in Australia?

- Classroom Project:
To obtain a historical perspective have students develop a timeline of the history of the settlement of Australia. Begin with the 16th century. Divide the students into groups of two or three per group. Assign each group a historical perspective to research over a fifty-year period up to 2001. Include political (who ruled), social/cultural (arts and humanities), economical (world trade), physical (political boundaries), geographical (including immigration and cultural influences), and historical events (wars and conflicts, gold rush). Assign each group a place along the time line to write major events and influences.
- Home Connection:
Plan a family two-week vacation to Australia or another vacation destination. Search the newspaper Travel Section for travel packages, airline rates, and currency exchange rates. Contact travel agencies or online agencies for additional information. Determine places to visit (cities, countryside, landmarks and monuments, cultural events, nature preserves, etc.). Calculate the cost for travel, food, and lodging for all family members.
- Map/Math Connection:
Obtain or create a blackline master of Australia without physiographic features, cities, or states labeled. Also obtain a large map (or overhead) with labeled cities, physiographic features and political features. On their blank maps, have students label the following states: New South Whales, Queensland, South Australia, Tasmania, Victoria, and Western Australia. Have them locate the cities of Sydney, Brisbane, Adelaide, Hobart, Melbourne, Perth, and the Capitol, Canberra. Label the Pacific, Indian, and Southern Oceans as well as the Tasman, Coral and Timor Seas.
- Project Team Connection: History Team
- Using the Newspaper:
Locate articles, advertisements, or other clippings that pertain to Australia or your own local region. Classify the newspaper clippings into categories such as social, political, economical, recreational, literature, and arts and humanities.

Week 2 – Getting Ready/Planning and Preparation

- Theme: Vision and Motivation
- Interdisciplinary Connections: science, math, history, architecture, geography
- Skills: research, designing a model, calculating speed, mapping, using a log
- Key Words: vision, motivation, clipper ship, visualize
- Materials:
 - Classroom Project: Glue, large hors d'oeuvres toothpicks or thin dowels, scissors, flat Styrofoam plates, Styrofoam bowls, wall paper water trough, electric fan, stopwatch
 - Map/Math Connection: world map (Mercator projection); local state/provincial/regional map per group of 3-4 students
- Introducing the Lesson:

Ask students to recall a difficult trip that they, a friend, or family member has made. Point out that it is easy to dream of making a difficult trip or taking on a challenge, but to actually meet that challenge a completely different matter. Ask the students to put themselves in Rich and Bill's shoes. What might motivate them to take on such a high-risk adventure such as sailing from New York to Melbourne? Invite students to suggest some rewards (tangible, social, personal) that Rich and Bill might visualize. Ask them to predict the kinds of situations they might encounter, and the fears they would have to overcome, while on their journey. How would they decide what types and quantities of supplies to bring along with them to last 70 days on board without ever coming to shore? Have students work with a partner first, then share with the class, a list things they would want to pack on their boat.
- Classroom Project: Clipper Ship Race

Have students and find out about clipper ships. Some questions to research might include: (1) When were they first introduced into the sailing industry and how long were they used (1845-1859)? (2) Who was Donald McKay (Naval architect who built and designed many)? (3) What structural designs made them so swift (slim hull, many sails)? (3) How did some common types, such as California clipper, China clipper, coffee clipper, opium clipper, and tea clipper differ (designed for speed and cargo)? (4) How many crew members were usually on board (25-50 sailors)? (5) Why was the clipper ideal for taking gold-seekers from other countries (speed)?

Have students study the design of the *Mandarin* (and other clipper ships) from its picture on the sitesALIVE! website and/or from other resources. Invite them to design their own clipper ship based on the picture and their research using the materials listed above.

Group students in teams of 2-4 to have them design and build a model clipper from Styrofoam plates and bowls. Determine specifications for ship models including overall length, width, and height so that during the clipper race, the

ships compete as evenly as possible. Put a time limit on the design and building process.

Have a Clipper Race! Be sure, as student teams race their models, that they keep the water level, angle, fan speed and starting and finishing points constant. Use the stopwatch to calculate speed per second. Conclude by discussing the structural differences of the faster and slower clippers.

- Home Connection:
Have students work with a parent or other family member to make plans to go on a three-week-long journey to a remote area (e.g., Australian Outback, Grand Canyon in Arizona, USA) where there are no modern conveniences (plumbing facilities, refrigeration, grocery/supply stores, room/boardings, etc.). Select the season in which you plan to visit this area. Make a list of items (food, gear, and personal supplies) per person that are necessary for the length of time they will be on the journey. Have students share their list of “essentials.” How do these compare to what Rich and Bill are taking?
- Map/Math Connection:
Review the concepts of latitude and longitude. Explain that on a globe or map, lines of latitude are imaginary lines around the Earth that are drawn parallel to the equator. Lines of longitude are imaginary lines running north and south around the Earth. Latitude is measured in degrees north or south of the equator and Longitude is measured in degrees east and west of the Prime Meridian. These lines are used, in part, to allow ships at sea to know where they are located.

Using the concepts of latitude and longitude and the mathematical skills that accompany them, students will track *Great American II*'s location throughout the voyage. Consult the Ship's Log on a daily basis and plot the boat's position on the world map according to its latitude and longitude coordinates.
- Project Team Connection: Nutrition Team
- Using the Newspaper:
Compare and contrast the terms “motivation” and “vision” with the students. Can a person have a vision and no motivation or vice versa? Ask students to go to the *Ocean Challenge Live!* website to locate and read the description of *Ocean Challenge Live!* in the Teacher Guide Introduction. Then review the “Help Wanted” section of the Classified Ads section of the newspaper and ask the students to write an employment ad for an individual who would be qualified to undertake the *Ocean Challenge Live!* project. Compare the ads with the crew's qualifications outlined in their biographies.

Week 3 – Equator Crossing

- Theme: Observing traditions, nautical traditions
- Interdisciplinary connections: geography, math, history
- Skills: Brainstorming, classification, research
- Key Words: equator, superstition, tradition, ceremony, cartographer

- Materials: Props for role-playing

- Introducing the Lesson:
Different cultures have traditions and ceremonies that they conduct for a variety of reasons. It is thought that some organized religions were started as a way to explain the unknown; to provide reasons for phenomena that could not be explained. A superstition is a belief that runs counter to what a society holds to be true (e.g., don't walk under a ladder, knock on wood for good luck, etc.). Although superstitions may appear to be irrational, they and the actions/ceremonies that accompany them are still present in modern society.

Historically, sailors are superstitious. The crew of *Great American II* will follow a well-known ceremony based on superstition when they get to the equator: the equator-crossing ceremony. The purpose of the ceremony is to be blessed by King Neptune, mythical ruler of the oceans. During the ceremony, sailors typically dress oddly or cover themselves in a variety of unpleasant materials (old food, marine mud, etc.) in an effort to appease King Neptune and get his blessing to cross the equator and sail on safely. Discuss the concept of superstition and the equator-crossing ceremony with students.

- Classroom Project:
As an open discussion, have students list on the blackboard the superstitions that they may know of or follow. Once all superstitions are listed, have the students categorize them. In what area are most superstitions focused (e.g., sports, hobbies, family, etc.)? Ask students why they have these superstitions? Do they serve a purpose? What do they think would happen if they did not “hold the ceremony” that the superstition requires? What famous people do they know who are superstitious?

Once the students find out about how Rich and Bill conduct their equator-crossing ceremony, have the students gather materials from home to dress up and conduct their own ceremony, playing the roles of captain and crew of a ship. Do they think that King Neptune would bless them?

- Home Connection:
Families are a place where ceremonies, superstitions, and/or religion often play an important part. Have students discuss with their families what traditions they follow and why. Are the traditions based on religion? Are they based on “what they have always done?” What is the purpose of the ceremonies, traditions, and

superstitions that their families observe? What would happen, or how would it feel, if they did not observe these traditions?

- Map/Math Connection:

A cartographer is a person who designs and makes maps. Throughout history, cartographers illustrated the world in a way that it was perceived and understood by them at the time. Some maps were practical navigational maps while others “illuminated” the unknown with pictures of sea monsters and other hazards. Look through history textbooks and in library resources to find pictures of old maps (local, regional, and world). How did their perception of their world differ from what you know to be true today? What can you learn about people by observing the way in which they represent their world?

- Project Team Connection: Navigation Team

- Using the Newspaper:

Find an article or picture in the newspaper that shows or discusses a ceremony (political, religious, and personal). Why is this particular ceremony important? Write a letter to the editor that describes the process of one of your traditions and why it is important to you.

Week 4 – Environment: Water and Air

- Theme: Environmental Resources and Impacts
- Interdisciplinary connections: science, social studies, geography, language arts, mathematics
- Skills: fractions and decimal percents conversion, ratio and proportion calculations, making a model, persuasive writing, graphing, mapping
- Key Words: environment, pollution, climate, desalinator, ratio and proportion, ocean, sea, Likert scale, survey

- Materials:
 - Introducing the Lesson: light source (incandescent lamp), clean glass jars (1 quart or 1 liter), saltwater solution, food-grade plastic wrap, rubber bands
 - Classroom Project: newspaper editorials
 - Map/Math Connection: atlase(s) or globe, meter stick(s), paper, markers

- Introducing the Lesson:

Ask students to estimate how much water they use during a day. Help them to come to a reasonable estimate by first defining when they use it (remind them of the hidden uses too: laundry, cooking, lawn care, etc.). Emphasize the importance of fresh water to all life. Explain how fresh water and sea water are resources that we often take for granted, and that we tend not to realize their importance until they are polluted.

Rich and Bill have a limited capacity to store water on *Great American II* because of limited space. In addition, if they stored too much water, it might add too much weight to the boat and slow it down. Then they would be unable to beat *Mandarin*'s record. Nonetheless, they still must use a certain amount of water each day (drinking, cooking, washing, etc.). So how do they get enough fresh water? They make it with sea water by putting it through a process called desalinization. Students can use the following process (distillation) to demonstrate one way in which salt can be removed from water. Rich and Bill use a reverse osmosis desalinator on *Great American II*, a process that is different than distillation, but the end product is the same: fresh water.

Show students the light source, cup of salt water, large glass jar, plastic wrap, and rubber bands. In teams of 2-3, have them put a 1/2-cup of salt water into their jars. Have them taste a small drop of the solution and describe their thoughts; then place the plastic wrap tightly around the top of the jar and wrap a rubber band around it to seal it well. Make sure the salt water does not splash onto the plastic. Place the light source near the base of the jar to heat up the water. If no lamps are available, place the jars on a sunny windowsill. Leave the jars overnight, shutting off the light at the end of the day. The next day, have the students carefully remove the rubber bands and plastic and taste the water that has condensed on the plastic. Is it salty? If so, is it as salty as the water in the bottom of the jar? If not, why not?

- Classroom Project:
Distribute editorials from local newspapers. Editorials are written to capture the readers' attention and evoke an emotional response. Writers make a point and then support the point with factual information. Have students write a guest editorial about water pollution from a point of view related to *Ocean Challenge Live!* For example, they could write a letter from Rich or Bill about the evidence of pollution they see along the journey and the consequences to marine life.
- Home Connection:
Help students develop a survey to use with their parents and other family members about environmental concerns. As a class project, collectively develop statements about local environmental issues that can be responded to in a Likert scale ranging from "strongly agree" to "strongly disagree." Have students collect, analyze (in the form of histograms, bar graphs or circle graphs), and report the survey data from their families. Include recommendations from parents about the ways to improve and protect the environment.
- Map/Math Connection:
Ask students what they know about the ratio of land to water on Earth. Illustrate the point by showing them a globe and asking for estimates in either fractions or percents. Show them a meter stick and point out that centimeters are based on 100, as is percentile, and a meter stick can be used to show a percentage ratio of land to water on the Earth. Have students make meter sticks out of paper. Use the markers to color code and label the following facts on their paper meter sticks: approximately 75% of the earth's surface is covered with water; 4% of the 75% is fresh water.

Locate the oceans on the world map and order them by size from largest to smallest (Pacific, Atlantic, Indian, and Arctic). Based on 75% of the Earth's surface being covered by water, the area covered by each ocean covers the following percent: Pacific: 46%; Atlantic: 23%; Indian: 20.5%; Arctic: 4% Have students calculate how much of world is covered by each ocean and mark it on their meter stick (e.g., Pacific Ocean = $0.46 \times 0.75 = 34.5\% = 34.5$ centimeters on the meter stick. This number represents the percentage of the water on the Earth's surface that is covered by the Pacific Ocean.) The leftover percentage represents the seas.

- Project Team Connection: Geography and Environment Team
- Using the Newspaper:
Have students search the newspaper for examples of problems that affect the air or water in their community. Expand the boundaries of their community to the world and point out that sooner or later whatever happens in one environment can also affect all environments.

Week 5 – Invisible Places

- Theme: Describing Places; An Understanding of “Place”
- Interdisciplinary connections: geography, language arts (letter writing), social studies, science, math, history
- Skills: using an atlas or map, research, letter writing, using empathy, orienteering (using a compass)
- Key Words: environment, imagine, empathy, compass
- Materials:
 - Classroom Project: atlases, maps, Communications Team Project Guide
 - Math/Map Connection (demonstration or for each group of four): compass, aluminum pie pan, Styrofoam sheet (2 in² for each setup or demonstration), water, bar magnet, sewing needle, tape, small Post-its labeled: North 0°, East 90°, South 180°, West 270°
- Introducing the Lesson:

Ask students if they recall being away from home for a week or longer and were not with friends or family. For instance, going away to camp or school. Invite them to share their thoughts with a partner and develop a list of some of the things they missed (or imagine they would miss). Develop a class list of things they would miss.

Point out that the *Great American II* crew has been away from home and family for five weeks. What are some of the same “creature comforts” and family activities they have probably missed? How may Rich and Bill have used their memories of friends and family to comfort their loneliness? Talk about the meaning of empathy. (Imagining what someone else is feeling, thinking, or experiencing; putting yourself in someone else’s place and trying to feel his or her feelings inside yourself.) Suggest students write empathetic and encouraging letters to Rich and Bill.

- Classroom Project

Remind students that the *Great American II* crew hasn’t seen land for five weeks. Invite them to download maps from *Ocean Challenge Live!* of Rich and Bill’s journey from New York City to this point. Obtain atlases or maps showing landmasses bordering the route. Identify the major countries they have passed but not seen. Divide students into small groups and assign each a country to research. Find out about the geography, economy, climate, commercial interests, society, and culture of the lands and people. Have groups report or do brief Power Point presentations to the class about the land and people they studied. Guide students to write letters to Rich and Bill about what they have missed.

- Home Connection:
Have students work with their parents to determine what information they would want to share with other peoples to create an understanding of what makes the students' country "home?"
- Map/Math Connection:
Explain that early navigators used floating compasses to determine direction and to maintain the course of their ships. Elicit what mechanisms the earliest mariners used to navigate prior to the invention of the magnetic compass (they sailed close to shorelines and used telescopes if they went too far off shore).

The earliest compasses were invented by the Chinese in the twelfth century. The use of floating compasses was prevalent in European navigation by the 15th century. Guide the students to make floating compass models similar to those used in early navigation. Have students put water a centimeter deep in the aluminum pie pan. Cut Styrofoam square(s) 2 inches on each side. Magnetize a sewing needle by stroking the needle point several times against the north pole of a bar magnet. Each stroke must be in one direction only. Tape the needle diagonally onto the piece of foam, and then float it gently in the center of the pan. On the pan, label the direction that the needle points North 0°. Label the corresponding major compass points (South, East, West) around the edge of the pan. You may also wish to add NE, NW, SW, and SE. Use a standard compass to check for accuracy. If it does not correspond, see if other metallic objects are interacting with the magnetized needle.

- Project Team Connection:
Energy and Mechanics (Invite this team to share information about the navigational equipment used by the crew of *Great American II*.)
- Using the Newspaper:
Use the Communications Team Project Guide as a class project. Have students search the newspaper to identify news of interest to Rich and Bill, and write a news digest for the crew. Organize the project so that students work in teams on different sections of then newspaper.

Week 6 – Midpoint

- Theme: Turning Points
- Interdisciplinary connections: geography, technology, language arts, art
- Skills: using perspective, predicting, drawing (maps), research,
- Key Words: midpoint, perspective, desalinator, dehydrated food, communications systems

- Materials: Captain’s Log and Journals from *Ocean Challenge Live!*

- Introducing the Lesson:
Point out to students that at the midpoint in a journey or challenging experience, people can plan ahead with two different perspectives. They can look back and think of things they would have done differently. They can look ahead and think of ways they will act differently based on what they have learned during the first part of their journey. Form discussion groups to talk about what they might do differently at this point of the school year based on experiences they have had so far. Collectively share the information as a full-class discussion.

- Classroom Project:
Organize students into project teams. Have each team use the Captain’s Log and Journals in *Ocean Challenge Live!* to assess the status of the voyage thus far. Identify specific achievements as well as challenges, and predict whether *Great American II* will break *Mandarin*’s sailing record. Make sure that teams explain the reasoning behind their predictions. Ask each team to brainstorm and list whether they think that Rich and Bill made decisions so far that were “wrong” or “right”, depending on the result. What determines whether they made a good decision or not?

- Home Connection:
Have students interview their parents, grandparents or other family members to find out about turning points in their family history. What did they learn from these turning points that helped them make future decisions? Did they move ahead in different directions or ways? Why or why not?

- Map/Math Connection:
Ask students to turn their Route Maps upside down (i.e., north at the bottom) and view them from that perspective. Ask if they notice anything different about the route or have different predictions about the next weeks when they see the maps from that perspective. Point out that there is no reason why we are always put north at the “top” of maps. Ask them how people would use a compass if, instead of having north as the top of maps, people used south, east, or west as the top. To encourage students to think anew about maps and geography, have them put away the Route Map or other maps and draw their own map of the route that the boat will follow in the next six weeks. Then have them exchange their maps and see which person’s map has the most accurate detail.

- Project Team Connection: Information Team
- Using the Newspaper:

Have students search the newspaper for examples of individuals or organizations at a turning point. This could be a sports team, a business that has just issued a quarterly report, or a politician who is just beginning his term in government. Ask the students to imagine themselves from the individual's perspective in the same situation and at the same decision point. What kinds of things would the people who are at the turning point have to think about from their earlier experience? What goals might they set or change? What kinds of things might they plan ahead for based on that experience? How will they evaluate their success?

Week 7 – Decision-Making

- Theme: Making Decisions
- Interdisciplinary Connections: personal living, geography, math, science, history
- Skills: decision-making, map-reading, data collection
- Key Words: route, decision, alternative, prevailing winds, aneroid barometer, barometric pressure, millibars

- Materials:
 - Classroom Project: boat log, large map of western hemisphere, world map used to track Rich and Bill's position
 - Map/Math Connection: aneroid barometer (optional), atlases

- Introducing the Lesson:

Point out that daily – in fact hourly – the *Great American II* team must make decisions about which is the best route to take based on wind, weather, sea conditions, and destination. Ask students if they have ever taken a route that was longer than another route but safer or different in some other way. Ask them to explain why they chose to take the longer route. Have the following decision-making steps posted on the chalkboard or written on a transparency. Refer to them as they explain their decision to change a route:

 - (1) What was the problem or decision to be made about a route change?
 - (2) What route information (facts that created the problem) did they have?
 - (3) What were the alternative routes/solutions?
 - (4) What were consequences to each alternative route?
 - (5) Which seemed best choice and why?
 - (6) Which did they choose? Was that the best choice? If it was not, how did they deal with the consequences?

- Classroom Project:

Look at the world map that the class is using to track Rich and Bill's progress. Ask students to analyze the map and boat log on the *Ocean Challenge Live!* website to find instances where they have changed their route or course. Have students make a two-column chart on a piece of paper. In one column, ask them to list reasons why Rich and Bill might choose a certain route. In the other column, they should list reasons why the crew might avoid a certain route. For example, the crew might choose a route that has consistent prevailing winds and avoid a route that has a lot of storms. They should base their lists on information they have gained from the *Ocean Challenge Live!* website.

Have students contrast the route the *Great American II* is taking with the *Mandarin's* route. Discuss why the team may have chosen the route taken thus far. Further, discuss the decisions the captain of the *Mandarin*, John Parritt, bound with fortune hunters from the United States to Australia, may have made to achieve speed over safety.

Encourage students to study other voyagers such as Captain Bligh, sailing the *Bounty*, and his destination of Tahiti in the late 1780s. Other voyagers include Charles Darwin, Christopher Columbus, Henry the Navigator, and Ferdinand Magellan.

- Home Connection:
Have students and parents obtain a map that might have been used to go on a vacation or to visit a distant relative. Ask parents to discuss why they chose a certain route to follow. Plan several different routes to take them to the same place. Discuss and record the advantages and disadvantages of each of the routes. Give students opportunity to share their discussions and maps.
- Map/Math Connection:
Elicit from the students why air pressure changes (air density and elevation). Explain that detecting and measuring changes in air pressure is useful in predicting weather changes and a change in wind conditions (which can determine whether a ship's captain changes the course of his ship). Areas of high pressure generally bring clear skies and fair weather. Areas of low pressure bring clouds and precipitation.

Show students a barometer [optional] and explain that it is an instrument used to measure air pressure, often called barometric pressure. Point out that as temperature rises or elevation increases, the air becomes less dense. Thus, the pressure decreases. As the temperature drops or elevation decreases, the air becomes more dense and the air pressure increases. An aneroid barometer is a tool that responds to and measures air pressure. The *millibar* is a unit of pressure that is related to the actual weight of air pressing on a square centimeter. *Inches of mercury (in Hg)* is another common unit of measure for air pressure.

As the pressure increases or decreases at sea level, Rich and Bill use their barometer to predict changes in weather. Invite the Weather Team to present the air pressure data over the past week to determine if the barometric pressure reading was a good predictor of weather conditions and changes.

Have students collect barometric pressure readings for the next two weeks and use the data to predict weather changes.

- Project Team Connection: Weather Team
- Using the Newspaper:
Have students find examples of decision-making in the paper. Ask each to find a person whose decision is reported in the newspaper. Include cartoon characters, if desired. Encourage students to go through the decision-making method suggested in the Lesson Introduction. Ask them to identify the factors that affected the choice that person made. Was the outcome what the decision-maker anticipated?

Week 8 – Sea Life

- Theme: Food Chains/Webs and Interconnectedness
- Interdisciplinary Connections: science, geography
- Skills: classifying, critical thinking, identifying cause and effect relationship, decision-making, inferring, brainstorming
- Key Words: food chain, food web, surface dweller, depth dweller, buoyancy, swim bladder, adaptation, pollution, weather system, water cycle, density, vertebrate, invertebrate

- Materials:
Classroom Project: corn oil, shallow dish (ceramic or waxed paper bowl), feathers (one per student or group), water, hand magnifiers, paper towel, 1-2 feet of rubber or plastic tubing, large bucket, water

- Introducing the Lesson:
Have students recall the marine life that have been reported by Rich and Bill. Are they surface dwellers or depth dwellers? Find pictures of these animals and classify them as vertebrates or invertebrates. Are they migrating or was the place they were sighted their habitat? What are some of the special adaptations that these animals need in order to live in the ocean?

Are there different adaptations that marine animals might have for living near the surface of the ocean vs. living near the bottom? What are some differences between the two habitats? Ask students what differences they notice when they dive to the bottom of a pool. Explain that the deeper the animal goes in the ocean, the greater pressure increases and the cooler the temperature. This calls for specialized adaptations in many of these deep-dwelling organisms.

- Classroom Project:
Set up the following demonstration or have students investigate in cooperative groups. Obtain a feather, hand magnifier, dish, water, and oil. Use the magnifier(s) to have students observe the interlocking barbules along the feather barbs that line the shaft of the feather. Encourage them to pull the barbs apart then smooth them back to cause the barbules to reweave. Ask them to make statements about what they observe.

Pour four parts water in the dish to one part oil. Point out that it simulates an oil spill. Swirl the feathers in the mixture and pat dry on a paper towel to remove the oil. Repeat the feather observations and contrast the difference between the oiled feather and the dry feather. Explain that oiled feathers become matted, and this can prevent birds from flying, gathering food, or escaping predators. They also inhibit the feathers' insulating abilities. Furthermore, ingested oil can be poisonous.

How might other marine life be affected by an oil spill? Have students created an ocean food chain or web. Include at least 12 animals. Discuss how when one part of the food chain or web is affected by an incident (pollution, overfishing, etc.) so is the rest of the web.

- Home Connection:

In an earlier voyage on the *Great American II*, Rich was awed by the connectedness of ocean's action. "Every salty wave from San Francisco to Boston was connected to the next, and to every harbor, beach and river he passed." To demonstrate the concept of interconnectedness, have students talk with their families about how events, actions, and decisions that occurs within the family can have an effect on other other family members. How can students' own poor or wise, thoughtful or selfish decisions affect their families and others who care for them? Invite students to share their family discussion.

- Map/Math Connection:

On the ocean, distances are measured in *nautical miles*. On land, distances are measured in *statute miles*. The value of a nautical mile is based on the length of one minute of arc on Earth. A nautical mile is equivalent to 1.15 statute miles. A knot is a unit measure for speed, and if you are traveling at a speed of one nautical mile per hour, you are said to be traveling at a speed of one knot.

Go to the *Ocean Challenge Live!* website and the Boat Log. Find out how many nautical miles *Great American II* has traveled since it left New York. Based on the number of days they have traveled, what is the average number of miles per day they have traveled? Make the same calculation to determine their speed in knots (nautical miles/hour). Calculate the distance covered by and the average speed of *Great American II* over the next week. Can you make any correlations between the boat's speed and other information provided in the Boat Log?

- Project Team Connection: Marine Life

- Using the Newspaper:

It takes a variety of resources to make a newspaper. With so many newspapers published around the world, an enormous amount of these resources are consumed every day. Brainstorm a list of these resources with students, and have them develop a series of actions that newspapers might take to conserve these resources.

Week 9 – Teamwork & Perseverance

- Theme: Teamwork and Commitment
- Interdisciplinary connections: reading, history, science, geography
- Skills: decision-making, collaborating, showing respect, research
- Key Words: cooperation, challenge, commitment, perseverance, decision, tolerance, motivation

- Materials: *Ocean Challenge Live!* Weekly Updates

- Introducing the Lesson:
Ask students to recall a situation in which they, with another person or group, kept working toward a goal, even though it was a difficult goal to achieve. This might have been a team sporting competition, a school or community project, or a family challenge. Ask why the three elements, *commitment, cooperation, and perseverance*, are important to the success of the project or challenge. [Note: This could be more effectively done in a Think, Pair, Share format in which students first *think* and respond in writing to suggested questions; *pair* with another student to discuss responses; then *share* their responses to the class.] Point out that personal motivation and a commitment to achieving their goal is the reason members of the *Great American II* crew persist.

Discuss interpersonal problems that might occur between Rich and Bill after being together for nine weeks, 24 hours a day, in spite of their commitment. What are some constructive ways they handle their disagreements? Suppose their extended team (Boston-based communications team, weather service team, family and friends) did not share the commitment, cooperation, and perseverance that Rich and Bill share. How might this put Rich and Bill at risk?

- Classroom Project:
Have students review and share the information they have learned and gathered so far about the trip. What were some of the challenges the team has faced? How did Rich and Bill persist to meet the challenges? Encourage students to identify some problem-solving events. Evaluate Rich and Bill's decisions. Create a list of the lessons they may have learned from their decisions.

- Home Connection:
Have students interview their parents, grandparents, or other adult family members to find out about the daily challenges they face. These could be health, economic, work or family-related. How do they overcome these challenges? Are *cooperation, tolerance, commitment, and perseverance* a part of their solutions to problems?

Map/Math Connection:

Have students predict challenges that the team might face during the next few weeks based on their current location and the weather along the route for the next stage of the trip. Estimate the time Rich and Bill will encounter these challenges. Contrast the things that will be *out of their control* and those that will be *in their control*. How can they accept or deal with things that are out of their control? Find out about the near catastrophe Rich experienced in his first attempt to sail from San Francisco to Boston, USA on the *Great American I* in the archives of the sitesALIVE! website (see *Ocean Challenge/Racing a Ghost Ship*).

- Project Team Connection: Teamwork Team
- Using the Newspaper:
Have students look in the sports section (or find other potentially high-risk events) for examples of decision-making that led to a loss. Ask them to imagine (or role-play) the dialogue that took place before a decision. Invite them to imagine or stage the dialogue that took place after the decision that led to the loss or success. If the role-play involve a sporting-event loss, discuss how did using good sportsmanship helped the team?

Week 10 – Australia – Geography

- Theme: Australia's Land Down Under
- Interdisciplinary connections: art, geography
- Skills: sculpturing, reading maps, collaborating
- Key Words: relief map, Mercator projection, equal area map, latitude, longitude, states, territories, outback, landmass, waterway

- Materials: large physiographic map of Australia, blackline master of the outline of Australia without labeled landmarks and waterways, Mercator projection and equal area map, globe, salt and flour mixture for creating a relief sculpture or the recipe for an alternative medium in the Home Connection activity.

- Introducing the Lesson: Obtain a relief map of Australia (wall map or projection). Explain that it consists of states and territories. Locate the major waterways in and around it. Point out that it is the smallest continent on Earth. Direct students attention with the following questions and discussion points:
 - (1) **Oceans**: What ocean will finally lead Rich and Bill to Australia? (Indian)
 - (2) **Seas and Passages**: Seas are small bodies of salt water mostly surrounded by land. Locate the following seas and passages: Timor Sea, Arafura Sea, Torres Strait, Coral Sea, Tasman Sea, Bass Strait. Will Rich and Bill pass through any of these? If so, which ones?
 - (3) **Political Boundaries**: Australia is composed of states and territories. Locate the following states: New South Whales, Queensland, South Australia, Tasmania, Victoria, and Western Australia. Locate the following territories: Australia Capital Territory and Northern Territory. Point out that the Commonwealth of Australia extends about 2,500 miles east to west and about 2,300 miles north to south. Although it is the smallest continent in the world, it is also the sixth largest country. Contrast the total area of Australia (2,966,200 sq. mi.) with your state or country.
 - (4) **Geography**: Point out that Australia is one of the world's flattest landmasses. Locate the outback, which is composed of a series of great plains or low plateaus. Ask students to find the most mountainous area in Australia. Determine the latitudes between which Australia is located. Find out which countries are located between similar coordinates in the Northern Hemisphere.

- Classroom Project: Have students create a relief map of Australia. The medium can be salt and flour or the type of medium suggested below in Home Connection. Organize students into teams. One group could be the Sculpture Team (4-6 students). The rest of the students should be divided into a series of Focus Teams. The Focus Teams are responsible for studying their assigned areas to learn of the topography and the natural resources found there. The Focus Teams include:
 1. State Team(s) (2-3 students per state): New South Whales, Queensland, South Australia, Tasmania, Victoria and Western Australia

2. Territories Teams (2-3 students): Australia Capital Territory and Northern Territory
3. Marine Waterways Team (2-3 students): Timor Sea, Arafura Sea, Torres Strait, Coral Sea, Tasman Sea, Bass Strait, and Indian Ocean.

Have the Sculpture Team members be responsible for creating the mainland and relief as they confer with each of the Focus Teams. Assign one Sculpture Team member to work with one or more of the Focus Teams. You might find it helpful to project, cut, and separate the states and territories to make the completed sculpture easier to manage. These areas can be assembled later. (Note: In this case, Focus Teams will have to consult each other to ensure that the elevations are consistent between groups.). Throughout the week, have teams research the state, territory, or waterway and contribute to the design of the map. When the relief sculpture/map is complete, have students make a presentation about each of their areas.

- Home Connection: Have each student in the Sculpture Group prepare a Kool-Aid dough mixture at home and bring it to class in plastic bags. Duplicate the following recipe to send home with students: 2 ½ cups flour, ½ cup salt, 1 T. alum, 2 pkg. unsweetened Kool-Aid, 2 cups water, 3 T oil. Boil 2 cups water. Add to dry ingredients with 3 tablespoons oil. Knead together until well-mixed. Store in refrigerator until ready to use. Suggest parental supervision for safety reasons.
- Map/Math Connection:
If available, obtain a Mercator projection map, an equal area map, and a globe. Compare the proportional area differences of the landmasses at the South Pole of the globe on the globe, Mercator map, and equal-area map. Why do the landforms and oceans look different on the maps and globe? Point out that projecting a sphere onto a cylinder and opening it up to form a flat map achieves a Mercator projection. Conclude that the closer a location is to the North and South Poles on a Mercator projection, the more distorted the shape and size becomes. Discuss the importance of accurate maps and the risks that Rich and Bill might experience if their charts (nautical maps) are inaccurate.
- Project Team Connection: No Team Project presentation during this week. Use as a “catch-up” or allow the time for students to work on their relief map work.
- Using the Newspaper:
Cut maps out of the newspaper. Classify them as political, physical, climatic, weather, vegetative, economic, population, or other. Which are used most often and for what reason?

Week 11 – What We’ll Miss

- Theme: Perspective
- Interdisciplinary connections: math, geography, language arts
- Skills: graphing, map reading, averaging, narrative writing
- Key Words: perspective, challenge, lesson, narrative

- Materials: Boat Log
Math/Map Connection: map showing ocean currents and Travel Route

- Introducing the Lesson:
Organize students into the Team Project Groups. Have them list the most important events of the voyage. Prioritize the list and determine which are the top two most significant events. Have each group report to the class and tell why they chose the particular event as most significant. Have the class vote and display the results on a bar graph (based on which events were listed and how many times they were listed).

- Classroom Project:
Discuss how perspectives change after people experience an exciting or high-risk event. In what ways might Rich and Bill will have a different perspective now that they have almost finished their trip and reached their goal? Have students review the Boat Log and Captain’s Log to find what lessons the crew may have learned during the trip. Predict which lessons Rich will relate vs. the lessons Bill will identify upon landing.

- Home Connection:
Prepare an opinion survey to be used with parents/family concerning the most significant events of the journey. Find out if parents agree with the students’ choice of significant events. Collect and compare parent data with class data. Find out if parents’ perspective might be different from students’. How do they differ?

- Map/Math Connection:
Use the Boat Log section of the *Ocean Challenge Live!* website to determine the distance completed so far and the distance remaining. Have students predict whether Rich and Bill will beat *Madarin*’s record of 69 days 14 hours.

Have students calculate the hourly rate at which *Great American II* has traveled in the past week. Study the remaining distance that the boat needs to travel to Melbourne, and predict the actual day and hour that *Great American II* will arrive. Create a contest to see whose prediction is the most accurate prediction.

- Project Team Connection: Communications Team

- Using the Newspaper:
Explain that a narrative is a way of telling the story of an event from beginning to end. Some narratives (1) capture the readers' attention in the introduction; (2) follow a logical sequence of events; (3) evoke an emotional response from the reader; (4) provide the reader with new information or a unique perspective on old information; and/or (5) employ appropriate tone or voice for the subject. Have students find narratives in the newspaper (features, op-ed section, etc.). Ask them what they notice about the kinds of information the reporter included. Have students write a narrative of some exciting events that occurred during *Great American II*'s journey so far. They may divide the description into subsequent parts and write the complete event as a team. Tell them to use newspaper style in their writing.

Week 12 – Defining Success

- Theme: Defining Success
- Interdisciplinary connections: geography, math, writing, arts, and humanities
- Skills: mapping, drama, creative expression, goal setting, planning, decision-making
Key Words: success, skills, achievement, resilient, procrastinate, self-esteem, lesson
- Materials:
Map/Math Connection: bulletin board or large sheet of bulletin board size paper
- Introducing the Lesson:
Have students review their notes about the journey. Remind them that at the beginning of Rich and Bill’s voyage there was no guarantee that the team would achieve their goal. Have them define success (what does success mean to them?). Did the crew break *Mandarin*’s record? If so, was their success limited to breaking the record? If not, could their voyage still be considered successful? As they review online materials, have students document and describe any instances that they would qualify as successful. What lessons were learned from mishaps or failures? Ask student what factors they think were most important in enabling Rich and Bill to succeed and get to their destination.
- Classroom Project:
Further the discussion of success. Do a “Think, Pair, Share” activity using the following questions or prompts: Identify people students believe are successful. Include people commonly known to the students such as classmates, teachers, family members, sports figures, politicians, etc. What are some actions or qualities a person needs to do/have to be successful? Some suggestions include being responsible, setting realistic goals, devising a plan to reach goals, managing time, commitment, and being resilient. Point out that goals need to be challenging but realistic. Discuss some pitfalls that hamper achieving success such as procrastinating or escaping, fear of failure, and poor planning. Write the term resilient on the chalkboard. Elicit a definition and examples of resiliency. Stress that being resilient means being able to recover from an event that could be disappointing or catastrophic.

Discuss how some of the following things can help a person define and achieve success for themselves: (1) make a checklist and check off the smaller steps as they are achieved; (2) reward oneself when a goal has been achieved; (3) ask for help when it is needed; (4) find someone who has a similar goal and exchange encouragement, ideas, and lessons learned; (5) when the goal is accomplished, reflect on the processes that were most important to the success. Point out that goal achievement builds self-esteem. Discuss the actions/qualities Rich and Bill demonstrated in setting and achieving their goal. How do they think that they used the five suggestions for achieving their goal?

- Home Connection:
Have students make a scrapbook of the materials they produced during the trip. It may be based on events, chronology, etc. Include photos, quotes, and captions downloaded from *Ocean Challenge Live!* on the sitesALIVE! website. Encourage students to focus on a theme such as teamwork, success, marine life, decision-making, record-breaking, etc..
- Map/Math Connection:
Using the classroom map students used to track *Great American II* during her voyage, have the class make a large annotated route map. Have students write “headlines” at specific locations along the route where significant events occurred.
- Project Team Connection:
The “Book and Movie Team” can act out the final scene of their film. Have a member of each of the other Project Teams present their own brief summary of the voyage from their particular perspective.
- Using the Newspaper:
Have students look through the newspaper for examples of people who have overcome challenges. Were the challenges mental, physical, emotional, or social? How did overcoming challenges affect others and those who cared about them? Are there any comparisons that can be made between how these people overcame their challenges and how Rich and Bill overcame theirs? Ask them to read the articles carefully to identify factors that have enabled those individuals to succeed.

Special Newspaper Project

Have the students prepare a “Special Edition” newspaper to celebrate the completion of the *Great American II*'s journey and their own work.

The Special Edition should include the following components:

Front Page: Headline and main feature story. “Side-bars”– related articles including interviews in which students may include quotes from the daily audio updates as well as interviews with members of the class who have become “experts” about specific aspects of the journey.

Features: Articles about different aspects of the journey. Each team can submit an article relating to the focus of their work.

Perspectives: Editorials and an editorial cartoon about the meaning of *Ocean Challenge Live!*.

Challenge Section: This section should include math problems, science connections, or trivia based on materials generated during the journey. Perhaps a crossword puzzle can be developed focusing on specific terms of importance to *Ocean Challenge Live!*

Student Team Projects

Suggested team projects are outlined below. The purpose of these projects is to give students practical experience working in teams to complete a final product. The projects either draw on or research the knowledge, skills, and/or abilities possessed by the crew of *Great American II*. Each lesson is linked to one of the projects, and students work in groups of two to four to take responsibility for the completion of each project. The work for many these projects is based on the information provided in the *Ocean Challenge Live!* website. A good way for students to get started is to send a question to Rich and Bill about the project topic. Outside sources may also be required.

Organize the “Team of the Week” approach, and schedule one group to report its findings to the class each week. This can be a full-class presentation. There are a total of eleven teams. There are no presentations during Week 10. This can be used as a “catch-up” week if needed, or, since the Classroom Project for Week 9 involves a lot of teamwork, students may use that time to accomplish their goals.

Use the project summaries below and the corresponding Project Guides as you organize students and assign tasks. It is suggested that each team be invited to give a very brief update of their progress and preliminary results once each week. Schedule at least one weekly collaboration session so groups can update their work.

History Team (Week 1)

Learn about and report on early explorers, commercial history, trade routes, and connections to Australia’s early settlement. Find out how the evolution of ship design and navigational tools have changed the way cargo is shipped around the world.

- Research explorers who have “challenged” the ocean.
- Collect information from history textbooks, encyclopedias, navigation resources, and the Internet to show the connections between the ways shipping merchandise has changed in the past three centuries.
- Find out about the history of the development and design of the clipper ship.

Nutrition and Health Team (Week 2)

Learn about and report on the food, water, medical, and sleep needs of the *Great American II* crew. Keep in mind that there is no refrigeration on board; water is desalinated; and Rich has severe asthma.

- Find out the average adult male’s nutritional needs. Determine the needs of an individual doing strenuous work for up to 18 hours a day. Do climatic changes affect these nutritional needs? If so, in what way?
- Contact a health professional, pharmacist, or the American Lung Association to obtain information about the causes, treatment, and risks of people with severe asthma.
- Research essential sleep requirements and recommend a “watch” system for Rich and Bill.

Navigation Team (Week 3)

Learn about the report on navigation methods, weather systems, and climate patterns.

- Plot the weekly position of *Great American II*. Calculate distance traveled and average speed, and predict future positions.
- Research the various climates and ocean currents *Great American II* will pass through. Include trade winds that affect the speed and direction of the boat.
- Find out the distance/direction to the nearest landmass.

Geography and Environment Team (Week 4)

Research and report on the physical features and environmental concerns of the regions that *Great American II* passes.

- Collect information, from atlases and encyclopedias, about the regions traveled and countries passed along the route.
- Learn about and report on the environmental issues facing the oceans and countries that *Great American II* passes. Include such contributing factors as fishing and shipping industries; weather; land-based marine pollution sources; oil drilling; ocean dumping; etc.

Energy and Mechanics (Week 5)

Learn about and report on electricity generation (solar, wind, diesel engine) and use (lights, computers, radios, autopilots, desalinators, etc.). Report on the mechanics (sails, ropes, and pulleys) floatation, structure, and materials of the *Great American II*.

- Collect information on the basic elements of sailboats. Find out more about trimarans and the advantages and disadvantages of monohulls and multihulls.
- Determine strategies to conserve energy on board and deal with unexpected energy needs.

Information Team (Week 6)

Collect and distribute pertinent data and information to the other teams regarding the voyage. Maintain a time-line.

- Seek daily information and data from *Ocean Challenge Live!* on the sites *ALIVE!* Website.
- Listen to the daily audio updates to get information about the trip and to sense the crew's mood (all the teams on a rotating basis could share this responsibility).
- Maintain a time-line display for the duration of the voyage. This can include items collected from the other project teams.
- Report the information on the Information Team chart. Create a bulletin board display that asks for the "Focus of the Weekly Report", "Significant Events from the Daily Audio Updates" and "Global Events and Information".

Weather Team (Week 7)

Learn about and report on the weather systems and climatic patterns that affect *Great American II's* journey.

- Use the sitesALIVE! website to collect information and report on the air temperature, sea temperature, wind direction and velocity, and rainfall.
- Document storms and other extreme weather that *Great American II* experiences.
- Find out how the climatic patterns affect the weather changes.

Marine Life Team (Week 8)

Research and report on the vast array of marine life found in the regions *Great American II* passes.

- Find out about the vertebrates (fish, reptiles, marine mammals, birds, etc.), invertebrates (jellyfish, etc.), and plant and algae that populate the oceans along the journey. Learn about the food webs of which these organisms are a part as well as the migratory routes that the animals follow.
- Collect information on various marine-related industries based near the regions Rich and Bill will travel and the impact these industries may have on the marine life. Include fishing, whaling, oil exploration, and shipping.
- Record wildlife sightings and encounters reported by Rich and Bill.

Teamwork Team (Week 9)

Read the biographies of *Great American II's* crew and report to the class about the knowledge, skills, and abilities possessed by these men that will contribute to their success. Include their mental, physical, academic and emotional strengths and/or weaknesses. How do their strengths contribute to their teamwork? How do they deal with their weaknesses?

- Collect information about the progress and problems of *Ocean Challenge Live!* crew from the sitesALIVE! website. Be particularly sensitive to the feelings that the crew's voices communicate in the audio clips.
- Find out about how some industries, such as automobile manufacturers, employ a team-approach to produce products.
- Create a guide for successful completion of the *Ocean Challenge Live!* project teams.

Communications Team (Week 11)

Research and report on the radio and satellite transmission systems aboard *Great American II*. Compose weekly updates for the crew about local and national events “on shore.”

- Find out how radio and satellite communications work and determine their respective advantages. Compare the frequencies these technologies use to those used for television, AM, and FM Radio.
- Read the newspaper and keep a record of summarized news reports that would keep the *Great American II* crew well informed. Topics can include national and international events, politics, and sports.

Book and Movie Team (Week 12)

Write the story of the voyage for a book and create scenes, dialogue, storyboards, and casting for a movie or play.

- Use information from the sites [ALIVE!](#) website and information from other student teams to write this story.
- Students with a special interest in art may work as illustrators on this team.

HISTORY TEAM—PROJECT GUIDE

The History Team will research the histories of the countries along the route that *Great American II* sails. Your research can include using world history textbooks, encyclopedias, the Ocean Challenge Live! website, CD-ROMs, etc.

1. Start by researching and summarizing the voyages of sailors who have challenged the ocean. Include information on the following:

Hernando de Soto
Hernán Cortés
Vasco Nuñez de Balboa
Juan Ponce de León
Christopher Columbus
Captain James Cook¹
Willem Jansy²
Dirck Hartog²
William Dampier³

2. Find out about the history of commerce and trade routes in the regions *Great American II* passes.
3. For each country along the way, make a History Connections digest. Include information about explorers and navigators who have met challenges in that country. Follow this outline in your reports:

- A. Country
- B. Explorer/Navigator
- C. Challenge an Individual Faced There
- D. How that Person Met the Challenge
- E. Connections to Ocean Challenge Live!

How does the explorer's challenge compare to Rich and Bill's voyage?

What advice might this explorer have for the sailors on *Great American II*?

Added Challenge:

How is traveling in space like traveling on *Great American II*? What lessons might the sailors on *Great American II* have for future travelers in outer space?

Use the names of places along *Great American II*'s route to find out about the history of individuals who have traveled and explored in these areas.

¹ English explorer to Australia; helped establish British claims and charted the coast and New South Wales.

² Dutch explorers to Australia.

³ English explorer to Australia.

NUTRITION AND HEALTH TEAM—PROJECT GUIDE

Your challenge is to learn about and report on the food, water, medical, and sleep needs of *Great American II*'s crew.

1. Prepare for Your Job

Interview a coach, athlete, nurse, doctor, or nutritionist and find out answers to the following questions:

- a. How many calories per day does a person doing hard physical labor 12 hours per day need to consume?
- b. What foods are high in energy?
- c. How much water does an adult under a lot of physical strain need each day?
- d. Rich Wilson has had severe asthma since childhood. What is asthma? What special medical needs or concerns does a person with asthma have?
- e. What kinds of medical supplies should people take on a long, nonstop ocean voyage?
- f. How many hours of sleep should each crew member get during a 24-hour period? Since Bill and Rich will be on alternating watches, how long should their watches be to allow each of them to get enough consecutive hours of sleep?
- g. What other advice does the medical or health expert have for two sailors on such a trip?

2. Recommend Foods

Make a list of the kinds of foods that Rich and Bill should take along. Remember there is no refrigerator on the boat.

3. Food Consumption

Design a balanced and practical menu that will provide the necessary calories and nutrients for Rich and Bill during a 24-hour period.

4. Water Consumption

Rich and Bill get fresh drinking water for the ocean salt water by using a machine called a desalinator. Figure out how much drinking water Rich and Bill will have to make each day.

5. Pack the Medicine Chest

Make a list of the supplies that Rich and Bill should be sure to pack to provide for their health and medical needs.

Added Challenge: Find out how the nutritional and calorie needs of the crew will change as they travel through different climates. Make a calorie chart of foods you think the *Great American II* crew should eat.

NAVIGATION TEAM—PROJECT GUIDE

Location Report: Use the chart below to record the location of the boat and its distance to the nearest land mass, predict its location one week from the current report, and calculate the average weekly distance traveled.

Date	Latitude/Longitude	Distance/Direction to Nearest Land	Average Weekly Distance
Week 1 Prediction			
Week 1			
Week 2 Prediction			
Week 2			
Week 3 Prediction			
Week 3			
Week 4 Prediction			
Week 4			
Week 5 Prediction			
Week 5			
Week 6 Prediction			
Week 6			
Week 7 Prediction			
Week 7			
Week 8 Prediction			
Week 8			
Week 9 Prediction			
Week 9			
Week 10 Prediction			
Week 10			
Week 11 Prediction			
Week 11			
Week 12 Prediction			
Week 12			

Added Challenge: Your predictions should improve each week as you learn more about the challenge. What kinds of things do you learn that help you make better predictions about the location of the boat? Calculate the average speed *Great American II* must travel to break *Mandarin*'s record of 69 days, 14 hours. The total distance is approximately 14,000 miles.

GEOGRAPHY AND ENVIRONMENT TEAM—PROJECT GUIDE

Your team is challenged to describe the countries and global regions that *Great American II* is passing, and the environmental issues facing these regions.

Week	Nearest Country/Region	Description of the Region	Environmental Issues of the Region
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Added Challenge: Pick one environmental issue and research it to see if this problem exists in other parts of the world.

ENERGY AND MECHANICS TEAM—PROJECT GUIDE 1

There are two parts to this project team: the basic physical setup of the boat and the use of energy during the trip. You need to work on both parts as the trip proceeds.

1. The Physics of a Trimaran

What is a trimaran and why is it built the way it is? To answer these questions, you need a picture of such a boat (found in the See Location link on the Ocean Challenge Live! website), a list of its parts, and an understanding of sailing. You may also find information about trimarans and other sailing vessels from the essays, journals, and questions and answers on the website.

- a. To find out about sailboats, there are several options:
 - Call a boat dealer if you have one in your area. If you cannot find a boat dealer, then contact a boat manufacturer. How will you find such a business? Use the yellow pages from a seaport such as New York, Melbourne, Cape Town, etc.
 - Get a model of a sailboat from a hobby store and put it together. You will get to know the parts of a sailboat first-hand.
 - Conduct an interview with someone who has sailed.
- b. To report your information, make a key to a picture of a trimaran. For each part, tell how it works and why it is important to the boat (you can use the diagrams in the See Location part of the Ocean Challenge Live website).
- c. Find out and list the advantages and disadvantages of sailing monohulls (boats with one hull) and multihulls (boats like a trimaran with more than one hull).
- d. Make a list of tools to be included in a toolbox to keep the sailboat in good repair. Remember, there is a limit on space and weight on board.

2. Energy Advisors

It is your job to give the team advice on their use of electricity. First, do some research (visit the See Location link on the Ocean Challenge Live! website). Contact your local electric company and get information about the use of electrical power for equipment.

- a. Make a list of the equipment on the boat that will require electricity.
- b. Make a general list of suggested ways that the *Great American II* crew can conserve electricity.
- c. Make a list of ways the boat generates electricity (using the sun, wind, and boat's engine), and then find out more about these three methods of getting energy.

ENERGY AND MECHANICS—TEAM PROJECT GUIDE 2

Energy Log: Keep an energy log. Note any problems that cause the *Great American II* crew to use extra energy.

Week	Extra Energy Use	How Serious is the Extra Use?	Your Advice to the Crew About This Situation
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Added Challenge: Set up an experiment in the classroom to determine how long different voltage batteries will power a light, and graph the results.

INFORMATION TEAM—PROJECT GUIDE

Each week your team will contribute to this chart, which can be set up as a bulletin board.

Week	Focus of Weekly Report	Significant Happenings from Daily Audio Updates	Special Events and Info
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			

Added Challenge: At the end of the trip, decide which week was the most challenging.

WEATHER TEAM—PROJECT GUIDE

Weather Report: You are the weather forecasting bureau. As the trip proceeds, complete this chart and determine how the weather has affected the team’s progress. You can base your predictions on climate information available in an atlas. Each week compare your predictions to actual weather conditions reported in the Ship’s Log on the Ocean Challenge Live! website.

Date	Air Temperature	Sea Temperature	Wind Speed/ Direction	Rainfall
Prediction for Week 1				
Week 1				
Prediction for Week 2				
Week 2				
Prediction for Week 3				
Week 3				
Prediction for Week 4				
Week 4				
Prediction for Week 5				
Week 5				
Prediction for Week 6				
Week 6				
Prediction for Week 7				
Week 7				
Prediction for Week 8				
Week 8				
Prediction for Week 9				
Week 9				
Prediction for Week 10				
Week 10				
Prediction for Week 11				
Week 11				
Prediction for Week 12				
Week 12				

Added Challenge: Which week was the best for weather, and why? Which week was the worst for weather, and why? Research and report on these topics: magnetic vs. true north; ocean currents; trade winds; barometric pressure; high and low pressure systems; icebergs; and hurricanes.

COMMUNICATIONS TEAM—PROJECT GUIDE

Your team has two jobs. The first is to find out about the radio and satellite communications used on *Great American II*. Your second responsibility is to keep Rich and Bill up to date on what is going on in the world.

1. Research and report to the class on radio and satellite communications. Explain how radio and satellite communications work and what the advantages are of each. Include the frequencies used and compare them with television, AM, and FM radio frequencies.
2. Create a weekly news digest to send to the crew. Your job is challenging because you can send only short messages that are like telegrams. To practice this skill, read the news digest or world briefs section of the newspaper.

Use this outline to gather the news for the crew and to write it:

- a. What part of the news will you follow? Each member of the Communications Team should choose a different type of news to report about.

TEAM MEMBER	NEWS YOU WILL REPORT

- b. Read the newspaper and choose the three most important stories in your news area. Then write a brief report that relates each story in *20 words or less*.

NEWS TOPIC:

MY TWENTY WORDS:

- c. Check your story with another member of the team. Be sure that you have told the story clearly and within the word count.

Added Challenge: Translate your news into pictograms or another language.

BOOK AND MOVIE TEAM—PROJECT GUIDE 1

Your challenge is to write a story of the trip. There will be two uses for the story: one for a book you outline and write and one for a movie or play based on that book. You may be assigned to write about one week, a few weeks, or the whole trip.

Writing the Book

1. Set up your team with three jobs. Two or more students can work on each of three jobs:
 - a. information reporter
 - b. writer
 - c. editor

2. Start with this important step: outline the story.

3. Decide if you will use any special features. For example, you may decide to include maps and charts.

4. Research how reporters tell stories. Read at least three newspaper articles about events. Discuss these questions and make a list of “Tips for Good Writers” based on what you learn from reading and talking about news stories.
 - a. How does the writer keep the reader interested?
 - b. How does the writer work facts into the story?
 - c. How does the writer begin the story?
 - d. How does the writer end the story?
 - e. What else do you notice about the way the story is written?

5. Write a story of the voyage using your list of Tips for Good Writers as a guide. You can divide the writing into two chapters, with each team member responsible for one chapter.



Ocean Challenge Live! Route Map



