

# Underwater Forensics

**Grade Level:** 9-12

**Subject:** Forensic Science

**Duration:** One or two class periods

## Objectives

Students will

- discover how a team of scientists uncover the facts about a shipwreck;
- describe the roles of scientists and technicians on an underwater forensics team;
- research a shipwreck; and
- demonstrate understanding of why such incidents occur.

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## Materials

- Paper and pencils
- Computer with Internet access
- *Underwater Forensics* video and VCR

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## Procedures

1. Begin the lesson by showing students the segment entitled “The Wreck of the *Portland*.” Emphasize how scientists determined when the ship sank and how they found its remains.
2. Hold a class discussion about how the scientists found answers to their questions. Focus on the following questions:
  - Who makes up the team of scientists and workers in an underwater forensics expedition?
  - What job does each team member perform?
  - How do they work together to answer their questions and uncover ships buried underwater?
3. Divide students into pairs and tell them their challenge is to research another shipwreck. They will determine why the ship sank, how information was gathered, and, if available, how individuals with different expertise worked together to find the ship. Students should write a report of their findings and include the following key points:
  - Provide a brief history of the ship.
  - Describe what is known about why the ship sank.
  - Identify individuals involved in an excavation effort (if available).
  - Describe what each individual does.
  - Describe how individuals work together to solve a problem.
4. Students may choose from the shipwrecks listed below or research another one with teacher approval.

### **Lusitania**

[http://www.brainyencyclopedia.com/encyclopedia/m/ma/maritime\\_archaeology.html#](http://www.brainyencyclopedia.com/encyclopedia/m/ma/maritime_archaeology.html#)

<http://www.lostliners.com/Liners/Cunard/Lusitania/index.html>

<http://www.greatoceanliners.net/index2.html>

### **USS Maine**

<http://www.chinfo.navy.mil/navpalib/ships/battleships/maine/maine.html>  
<http://www.smithsonianmag.si.edu/smithsonian/issues98/feb98/maine.html>

### **Edmund Fitzgerald**

<http://www.lakesuperior.com/online/225/225fitz.html#main>  
<http://www.lakesuperior.com/online/225/225fitz.html#why>

### **Andrea Doria**

<http://andreadoria.org/TheEvents.htm>  
<http://greatoceanliners.net/andreadoria.html>

5. Allow students class time to prepare their reports; encourage them to include photographs or other pictures.
6. Ask volunteers to share their reports with the class. Try to include at least two different shipwrecks by the student presentations.
7. Conclude the lesson by discussing the role of technology in uncovering the reasons for a shipwreck. Does improved technology tell us more about recent incidents? Ask students to consider why it is important to understand what caused a shipwreck. What can we learn from these tragedies?

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## Evaluation

Use the following three-point rubric to evaluate students' work during this lesson.

- **Three points:** Students participated actively in class discussions; wrote an interesting, informative, and creative report describing a shipwreck; and demonstrated an in-depth understanding of the reasons such incidents occur.
- **Two points:** Students participated in class discussions; wrote a competent essay describing a shipwreck; and demonstrated some understanding of the reasons such incidents occur.
- **One point:** Students did not participate in class discussions; wrote an incomplete report about a shipwreck; and demonstrated no understanding of the reasons such incidents occur.

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## Vocabulary

### **Andrea Doria**

**Definition:** an Italian luxury liner built in the early 1950s that sank on July 25, 1956

**Context:** After colliding with the Swedish liner the Stockholm, the Andrea Doria sank, but not before all but 46 passengers were rescued.

### **Edmund Fitzgerald**

**Definition:** a freighter that sank on November 10, 1975, on Lake Superior, resulting in the death of 29 people

**Context:** Almost 30 years after the Edmund Fitzgerald sank, scientists don't know why it disappeared into icy waters.

### **Lusitania**

**Definition:** an English ocean liner torpedoed by a German U-boat on May 7, 1915

**Context:** Claiming that the Lusitania was carrying munitions, the Germans attacked it, and more than a thousand people died.

### **USS Maine**

**Definition:** a battleship that sank en route from Key West to Havana, Cuba, on January 25, 1898

**Context:** On August 5, 1910, experts excavated the USS Maine and determined that an explosion in the lower bunker caused it to sink.

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## Academic Standards

The National Academy of Sciences provides guidelines for teaching science and a coherent vision of what it means to be scientifically literate for students in grades K–12. To view the standards, visit this Web site:  
<http://books.nap.edu/html/nse/html/overview.html#content>.

This lesson plan addresses the following national standards:

- Physical Science: Motions and forces
- Science and Technology: Understandings about science and technology
- Science in Personal and Social Perspectives: Natural and human-induced hazards

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## Credit

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