



Day Three Full Lesson Plan

Simulated Maritime Archeology with an ROV [Pool option]

SUMMARY

Students will operate the Trident, an ROV, to collect “evidence” that will provide a foundational understanding of the opportunities and challenges associated with conducting maritime archaeology. Students may choose to use this “evidence” when crafting a claim- and evidence-based narrative on day 5.

LEARNING OBJECTIVES

I can operate an ROV under controlled conditions while exploring for and analyzing “evidence.”

I can engage in a collaborative discussion making connections between the “evidence” found during a simulated maritime archeology activity and my prior knowledge of “The Moonrise: A Fictional Account of a Great Lakes Voyage.”

LESSON CONCEPTS

Available technology influences what can be accomplished at a particular moment in history.

ACADEMIC VOCABULARY

Maritime archaeology, ROV: Remotely Operated Vehicle.

PRIOR KNOWLEDGE

What students need to know and be able to do prior to this lesson:

Students who have experience with a game controller and/or other devices used to remotely operate electronic devices such as drones will be at an advantage.

Students need to understand what a “claim” is and be able to arrive at a conclusion by reasoning based on evidence.

Students understand the inherent risk and basic safety procedures.

Students should have a basic understanding of group dynamics and be able to express their views without dominating the conversation or failing to contribute.

Student preferences and interests to consider in preparation for this lesson:

Middle and high school students generally enjoy working in small groups and sharing their thoughts with one another.

Misconceptions and/or misunderstandings that students might have related to this lesson:

Underwater remotely operated vehicles (ROVs) can be controlled like a drone or remote-controlled toy without a tether.

CLASSROOM NEEDS

Pool [If you do not have access to a pool, see [lesson adaptation for use without a pool](#)]

Trident and Controller

Banner

Easel

Safety tape or cones for pool deck

Compressed air or silicone spray

Cloths or towels

TEACHER PREPARATION

PREPARE POOL AREA FOR STUDENTS

Hang the banner on the side of the pool using the ropes provided. Please do not damage the banner by hanging it with tacks and/or nails. Mark the pool deck with waterproof tape or safety cones to establish a line approximately two feet from the pool edge (to establish a line that students may not cross). Have the easel with the Enlarged Images from Banner on it. The images should be faced away from the class and in numerical order so that they can be easily revealed upon “discovery.”

PREPARE TRIDENT FOR ITS VOYAGE

Check that the Trident is fully charged and ready to move in its case. Have the laminated Trident Controller Image. Complete the steps in the Trident Quick Start Guide (e.g., charge the Trident and the Controller.)

DOCUMENTS

For students

File 3 [The Moonrise: A Fictional Account of a Great Lakes Voyage](#)

File 14 [Sketch of Ship](#) (file includes student worksheet [8.5x11] and answer key [11x17])

File 15 [Trident Data Points Log](#) (file includes answer key and student worksheet)

For educator

File 11 Trident Controller Diagram (file includes answer key and student worksheet)

File 12 Trident Quick Start Guide

File 13 Trident Operation Manual

File 14 Sketch of Ship (file includes student worksheet [8.5x11] and answer key [11x17]))

File 15 Trident Data Points Log (file includes answer key and worksheet)

File 17 Enlarged Images from Banner

LESSON PLAN

GUIDED PRACTICE (15 MIN)

1) Review behavior expectations.

2) Demonstrate operation of ROV to collect “evidence.”

A possible way to begin: “Imagine that what we are seeing is 200 feet below the surface of the lake and what we are about to view with the ROV has not been viewed before today. Group by group, we will deploy the Trident to facilitate observations and enable us to collect “evidence.” “The “evidence” we collect today will be used to make a claim (and support it) when you write a claim- and evidence-based narrative. We need to work efficiently and effectively to document as much as possible. If this doesn’t happen, then we won’t have all the evidence we otherwise might. The fewer pieces of evidence we have, the harder it will be to piece together what happened and to refute claims that couldn’t possibly be true. So, let’s get started!”

Teacher navigates the Trident to the scale on the banner and reports what is found. Students record on the Trident Data Point Log.

3) Demonstrate how to record “evidence” (data points) and what to do with it.

Teacher demonstrates referencing the Enlarged Images from Banner and marking on the ship sketch where the item has been found. Students follow teacher’s lead by also referencing the Enlarged Images from Banner and marking on their sketch of the ship the particular location of where the item was found.

4) Model discussion of what the “evidence” may mean.

Teacher (and students) model discussion of what the item might reveal about whether the “wreckage” is the Moonrise, and if so, the fate of her passengers using the following prompts as discussion starters. Some examples include:

“I think this shows us that _____ because _____.”

“I think this happened because _____.”

“What could the _____ mean?”

“This may be related to the story of the Moonrise because _____.”

“I don’t think this supports the story of the Moonrise because _____.”

INDEPENDENT PRACTICE (REMAINDER OF CLASS PERIOD)

1) Groups take turns gathering “evidence” with the Trident.

Have the first group of students navigate the Trident to their assigned data point(s) and report what they find.

Remind the students that as other students are navigating the Trident, observers should be looking at the previous data points, marking on the sketch of the ship where the item was found, if possible, discussing what the previous data point meant or to what conclusions it could lead and recording this information on their “Trident Data Points Log.” Continue by having each group in turn find the remaining data points.

2) Groups discuss what conclusions they can draw from the data points.

LESSON SUPPORTS

Group work (students who are higher performing can work with lower-performing students).

ASSESSMENT

Completed Trident Data Points Log.

For the complete [ROVe the Great Lakes](http://go.wisc.edu/ROVe2) curriculum, visit go.wisc.edu/ROVe2.

