

NAVAL HISTORY STEM-H LESSON PLAN

Finding the Strait of Gibraltar (Basic)

STUDENT WORK SHEET

Name: _____

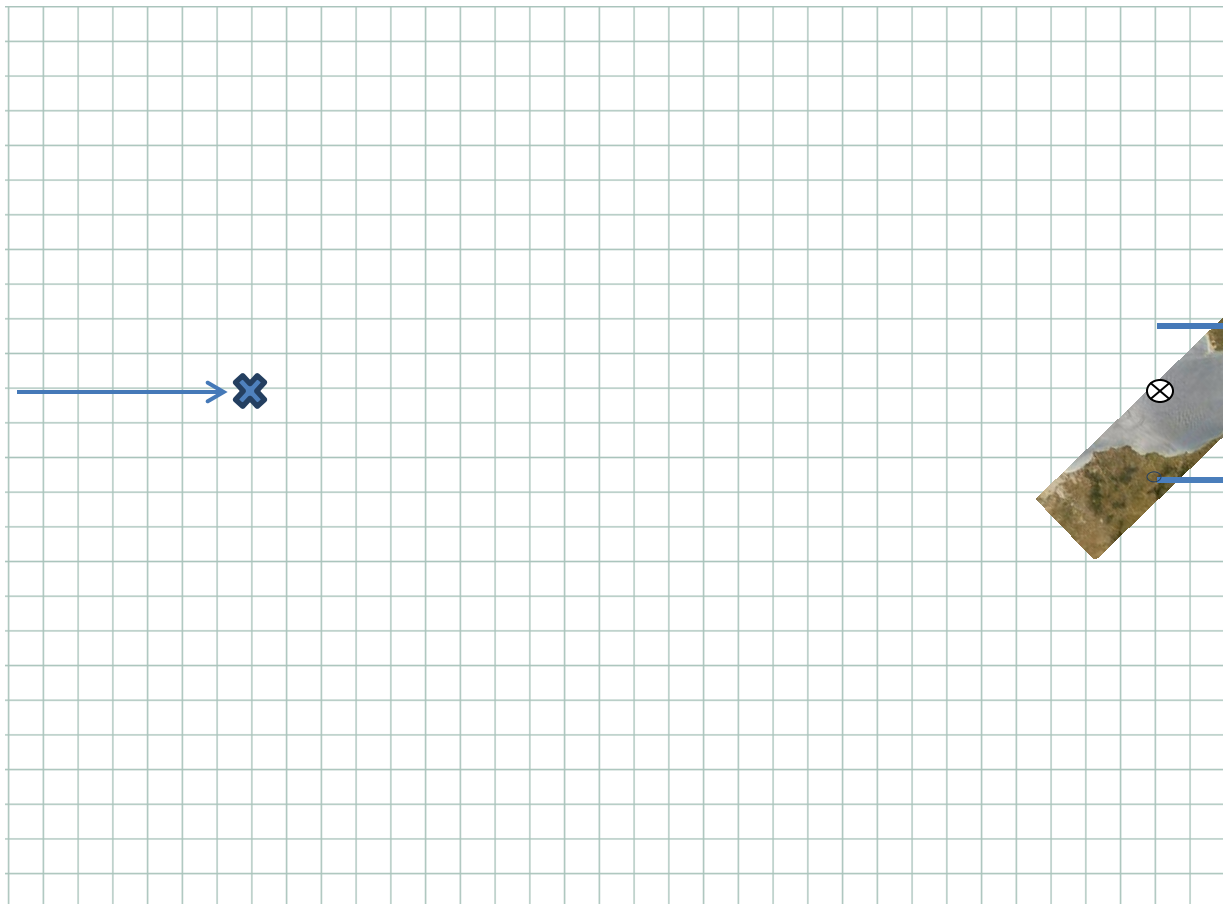
You are the navigator of a submarine that has been submerged for 12 hours and traveling at flank speed (20 knots) due east (090) toward the Strait of Gibraltar. Due to safety and security concerns you must bring your ship through the strait without surfacing to refine your location. "X" makes your current position based on dead reckoning and the most recent navigation "fix". Now, using vector addition you will calculate, using the information provided by the inertial guidance system, and adjust your position on the chart.

Where are you? What will happen if you keep going straight east? What course do you need to follow to get to the front of the Strait before steering directly to the east to "line-up" for the straight transit (shown by the circle on the chart.)

Your scenario: dead reckoning – 20 knots for 12 hours puts you at "X"

Information from you inertial guidance system.

- Fluid friction has held down your speed by 0.2 knots
- Ocean currents pushed your ship 2 knots east and 3 knots south for seven hours
- For three hours a bad storm pushed the ship south at 0.5 knots



Each grid square is two by two nautical miles. One knot equals one nautical mile per hour.