



Unmanned Security Vehicle

STEM Sims

Lesson 1: Water Pollution Source

Water pollution is harmful and should be prevented. Not only does contaminated water taint the water that could be used for drinking, but it also severely affects the animals that live in the water. Ships sometimes spill oil, trash, chemicals, sewage, and other pollutants into the water, and finding the source of the pollution can be hard to detect. Get out your remote control to guide an unmanned security vehicle around the waters to find the source!

Doing the Science

1. Start the Unmanned Security Vehicle Simulation by clicking on the “Sim” tab. Record the 12-digit code located in the upper right-hand corner of the screen in Table 1 below.
2. Click the red ball in the “Controller” panel. Dragging the red ball will control the direction of the Unmanned Security Vehicle (USV).
3. Use the controller to move the USV to various ship and water outflow locations and select “Sample” to create a sample of the water at the current location.
4. Use the Ship Location map in the Background section to identify the various ships and water outflows.
5. Click on “Temp” under the “Results” panel and record the temperature for each item into Table 1 below.
6. Click on each category under “Results” and record the data into the table.
9. Only 5 samples can be viewed at a time. You can click on each sample point to disable or enable viewing the data results. Sample points that are highlighted in yellow are active and their results can be viewed.
10. Click on “Clear All” under “Samples” to clear all the sample points.

Table 1. **12-Digit Code:** _____

Location	Temperature	Oil	Radiation	Bacteria	Mercury	Nitrates
1						
2						
3						
3						
4						
5						
6						
7						
8						

Location	Temperature	Oil	Radiation	Bacteria	Mercury	Nitrates
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						

Do You Understand?

1. Which of the ships or water outflows released the pollutant? (State the location number.)
2. Which of the six identified pollutants is the most damaging to the environment? Please explain your response.
3. Did you notice any patterns between some of the results categories? For example, could there be a pattern such as high radiation levels correlating with high temperatures?