Harbor Navigation Game

Overview
Students will try to safely navigate a ship through a channel (maze) of red and green paper, representing the red and green buoys, safely to port. Blue paper will represent water. Students will learn what certain buoys represent and why it is important to know!

Background
The United States Coast Guard implements the Uniform State Waterways Marking System (USWMS) which prescribes regulatory markers and aids to navigation to mark navigable state waters. The USWMS may also mark the non-navigable internal waters of a state. The United States Aids to Navigation System (USATONS) prescribes regulatory markers and aids to navigation that mark navigable waters of the United States. Navigable waters include territorial seas and internal waters that have been, or can be used for, interstate commerce, either by themselves or in connection with other waterways.

Materials
Red (right buoy), green (left buoy) and blue (water) paper
Small ships
Pictures of actual red and green buoys

Procedure
1. Lay out red, green and blue paper on the ground in straight rows (approximately 12 rows and 8 columns). The red paper indicates a red buoy on the right side of the channel as the boater enters and the green paper indicates a green buoy on the left side of the channel as the boater enters. In other words, the boat must have the red buoy on the right side of the ship and the green buoy on the left side of the ship to safely navigate through the deepest part of the shipping channel. For the student to safely navigate the maze they must have the red paper always on their right side and the left paper always on their left side. If they do not, their ship will run aground and either sink or need to be rescued by a tug.

   The paper must be arranged so that the student can find at least one channel to safely get from the lake or ocean at one end of the paper, to the port at the other end of the paper. To make the game more challenging, set up sequences of red-green-red, or green-red-green so the student has to think carefully as to which channel to use.

2. Explain to the student that their ship needs to get to port through the deepest part of the channel. They are the captain of the ship so it is up to them to safely navigate the channel!
3. Tell them the red and green paper represents the different buoys and blue paper represents the water.

4. Have students go through the channel individually. If at any point they will realize they have gone down a wrong channel, they can make a distress call to get help, by waving their hands. They will know if they went through the wrong channel by having the green paper on their right side and/or the red paper on their left side. Be watchful, as some students won’t catch they went in the wrong channel and will continue. Tell them they have to stop, they are in shallow water and ran aground.

5. At this point, another student, the rescue tugboat, will have to enter the maze and stay in the correct channel to reach and assist the grounded ship, and take it to port.

6. If the tugboat rescuer becomes aground too, then have another student, rescue tugboat, enter and keep going until at least one student can make it to port safely. Students can only make one distress call per round. If they become aground twice, then the ship cannot be saved, and they have to step out of the maze.

7. Once the maze is safely navigated, have students close their eyes, or turn away, so that the maze can be rearranged with new shipping channels.

Learning Assessment
Review with students the meaning of the buoy system for navigation. Ask them what the colors represent, and whether they think it would be hard to navigate a real ship? Explain to them we only used 2 buoys, and that there are many more buoys with different meanings to learn if you were a real captain!

Resources
Boat Safe http://www.boatsafe.com/nauticalknowhow/buoychanges.htm
Chart of distress signals http://www.boatsafe.com/nauticalknowhow/distress.htm
Aids to Navigation http://www.boatsafe.com/nauticalknowhow/aidstn.htm