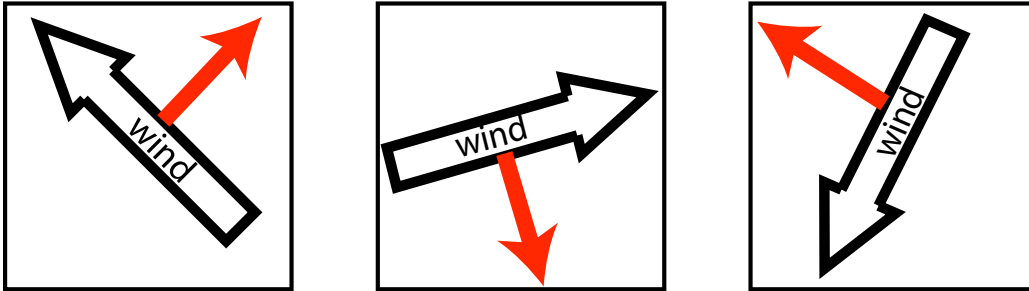
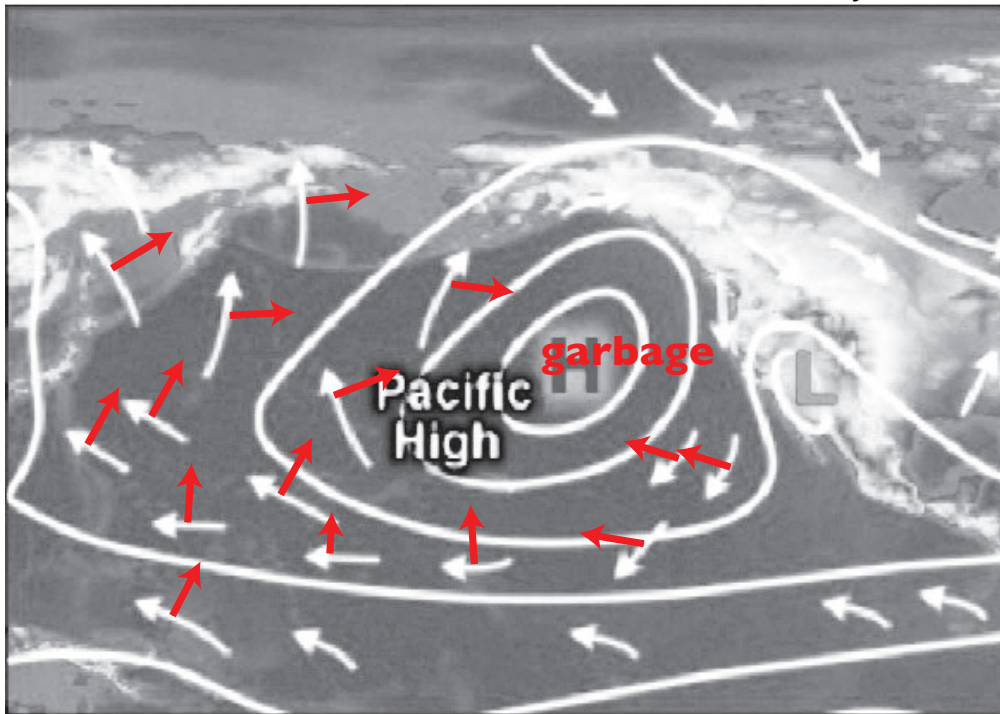


## Garbage patch and ocean currents activity

In the Northern Hemisphere water is transported at 90 degrees clockwise to the direction of the wind because of the Coriolis force. If the wind is blowing in the direction of the arrows below, draw an arrow in the direction of the water flow.



Below is a picture of the North Pacific Gyre, with white arrows indicating the average wind direction. Based on the arrows below, predict the direction of the surface currents across the Pacific and indicate the direction with your own arrows:



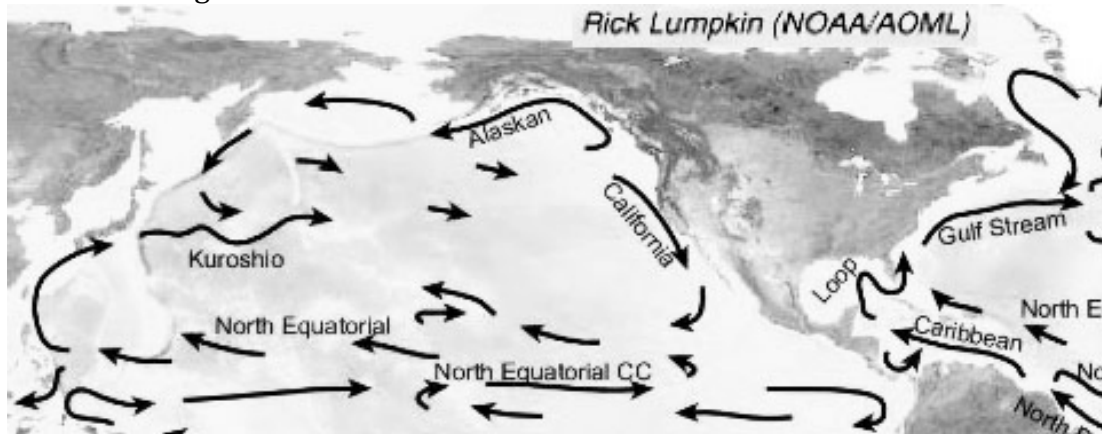
Describe the surface currents around the Pacific Gyre, what do you see:

The currents move in a clockwise direction and point towards the center of the Pacific High

Do you remember the location of the Pacific garbage patch? Mark the location on the map above and label it "garbage". Is there a connection between the surface currents and the location of the patch? If so, explain:

The Garbage Patch is in the center of the Pacific Gyre near the Pacific High. The surface currents point towards the center of the Patch, and the currents in the center are weak.

Below is a diagram of the currents in the North Pacific



How do the currents you drew on the previous page compare to the actual currents above? Are they similar? Describe the differences

The Currents are similar to those predicted from the wind, however there are a few places where they don't agree. In particular, they don't agree near the Alaskan Current.

Name the two major currents that border the United States (not including Alaska), and describe the direction each one flows:

The California Current flows from north to south along the western U.S., and the and the Gulf Stream flows towards the north-east along the eastern U.S.

Using the map above can you guess the relative temperature of the California and Gulf Stream currents? Which one is warmer? colder? Hint: think about where the water comes from.

The California Current is colder because it comes from cold regions to the north.  
The Gulf Stream is a warm current because it comes from southern regions.

If you dropped a piece of plastic on the street near your home, what path would it take to get to the center of the North Pacific Gyre? Name at least three natural processes that would take it there.

From my home in San Diego rain would take the plastic down a storm drain, the plastic would flow down a canyon to the ocean, wind forced upwelling would move it offshore, and wind forced ocean currents would eventually bring it to the center of the Garbage Patch.

Name three ways you can help keep plastic out of the Pacific garbage patch. Need help? Brainstorm with your classmates.

There are many answers to this question, but a few are: buy less plastic. recycle the plastic that you use, pick-up plastic off the street and dispose of it in the trash, don't litter, etc.