

Ocean Surface Currents

Materials:

- Video clip- [NASA's Perpetual Ocean](#) (if that link is expired, [search](#) for one that works).
- Each student will need a sheet of notebook paper

Beforehand:

1. Download the video, or prepare to stream it.
2. Watch it yourself and read its description.
3. Set the video up to loop so it can play continuously throughout the class period.

Procedure:

1. Have students title their paper "What I observed about the ocean surface currents, driven by the wind".
2. Next, have them draw a line halfway down their paper. This divides the paper into 2 halves; the upper half is for writing their observations during the video, and the lower half is for something else a little later.
3. After explaining to students what they are to do, go ahead and play the video. Let it run 1 ½ - 2 times while they write observations.
4. When done, call on students to share. You can do this orally, or, if you're brave, you could also have them come to the board and write them there.
5. Now we'll organize all this info we've collected. Go through each of the 4 features below that *generally* describe the ocean surface currents while students write take notes in the *lower* half of their paper (it's up to you if they're writing as you talk, or if you write them on the board for them to copy). These points are obviously not highly technical observations, but when taken together, they do give a more full appreciation of surface currents. You may find other features or better ways to word these points, so feel free to add or change anything you like.

<u>Feature</u>	<u>Description</u>
I. Length	-longer -shorter
II. Speed	-faster -slower -vary (slow then fast)
III. Shape	-straight -bent (caused mostly by Coriolis) -circular (caused mostly by continental deflection)
IV. Intensity	-heavier (near equator) -lighter

(While you're going through all this, it would helpful if you left the video continuously running/looping .)

6. Since students are already in writing mode, there's one more item we'll write down in the lower half:

Ocean surface currents move water from one part of the earth to another. Consequences of this:

1. Energy (heat) is moved, which greatly affects the weather
2. Matter (particles like salt, nutrients, and gases) are moved.
This helps keep the ocean mixed, so it's not too concentrated in one area.

Really Cool Demo

If you happen to be going over deep currents (the kind that rotate horizontally) soon, here's a demo you can do in class:

1. The day before, fill an ice cube tray with water, and add 2 drops of blue food coloring to each ice cube compartment. Freeze.
2. Fill some beakers 2/3 full of tap water (I had 1 beaker for every 2 students so they could see the demo right in front of them).
3. Put a blue ice cube in each beaker of water, and observe the beautiful blue convection stream from the cube!