

Understanding Main Ideas (Part A)

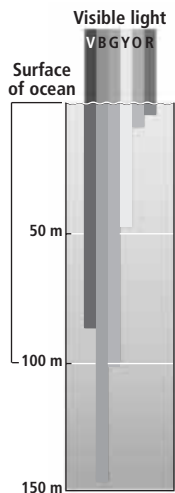
In the space at the left, write the word or phrase in parentheses that makes the statement correct.

- _____ 1. The mechanism by which water deep within Earth's interior is brought to the surface is (radiation, volcanism).
- _____ 2. The oceans contain 97 percent of Earth's water, and (saltwater, freshwater) sources contain 3 percent.
- _____ 3. Today, the (melting, thickening) of glaciers is causing a slow rise in the average global sea level.
- _____ 4. Seas are smaller than oceans and are partly or mostly (landlocked, submerged).
- _____ 5. Dissolved salts, gases, and nutrients are present in seawater in the form of (organic material, ions).
- _____ 6. As marine organisms die, their solid parts drift to the bottom of the ocean, causing salts to be (added to, removed from) seawater.
- _____ 7. The freezing point of salt water is somewhat (higher, lower) than that of freshwater.
- _____ 8. Oceans are dark below the depth of about (1000 m, 100 m).
- _____ 9. The surface layer and the (bottom layer, thermocline) are absent in polar seas.
- _____ 10. The coldest and densest water mass in all the oceans is (Antarctic Bottom Water, North Atlantic Deep Water).
- _____ 11. Earth's tidal bulges are always aligned with the (Sun, Moon).
- _____ 12. Closed, circular surface current systems are called (density currents, gyres).
- _____ 13. Upwelling waters bring (warm water, nutrients) to the ocean's surface.

Understanding Main Ideas (Part B)

Describe the concept or process that is shown in each diagram.

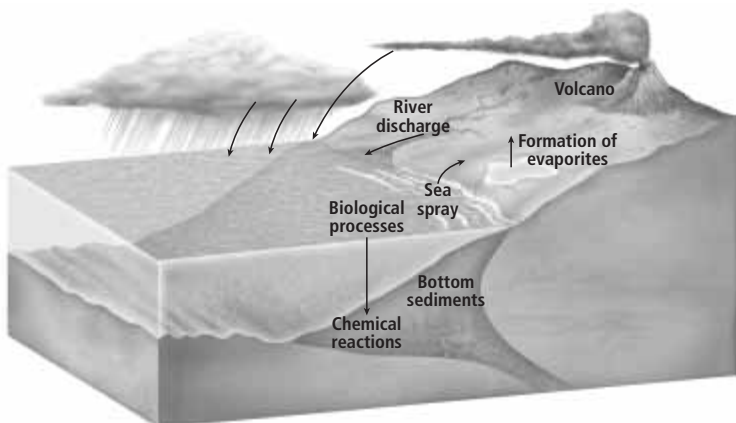
1. Absorption of Light



2. Cause of Tides



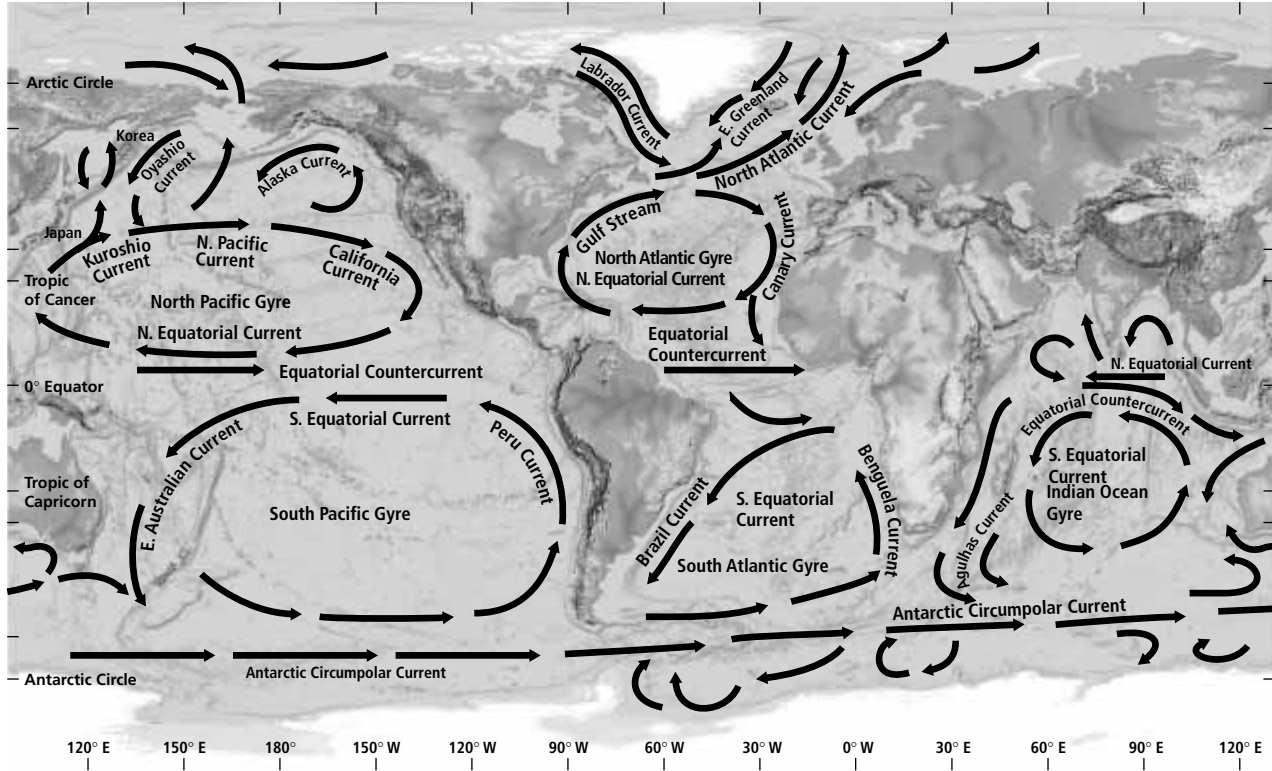
3. Sources of Sea Salt



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Thinking Critically

Use the diagram of Earth's gyres to answer the following questions.



1. What might be the course of the South Atlantic Gyre if Africa did not exist?

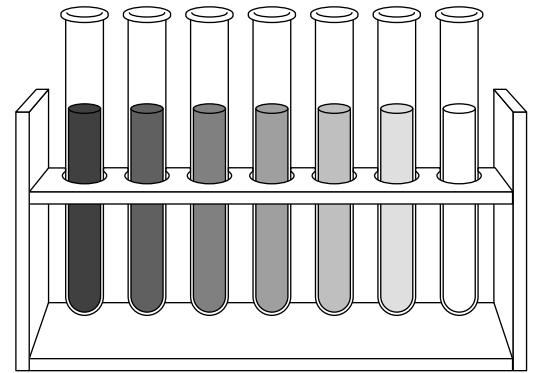
2. How might the absence of South America affect the size and course of the South Atlantic and South Pacific gyres?

3. What would be the likely effect on the currents near Japan and Korea if the prevailing midlatitude winds blew from east to west instead of west to east?

Applying Scientific Methods

Your Earth science class is conducting an experiment to determine the salt concentrations in an estuary, a place where a freshwater river flows into the salty seawater of an ocean. You have been told that in the inland portion of an estuary, the less-dense river water overrides the denser seawater.

You have collected seven samples of water from different locations in the estuary. You have also collected a sample of pure river water and a sample of pure seawater. You make concentrated samples by boiling each estuary sample until it is reduced to 250 mL. Then you fill seven test tubes halfway with each concentrated sample. Next, you make reference samples in seven more test tubes. The table shows the contents of each reference test tube.



Reference Samples

Study the illustration and table and answer the questions that follow.

Test Tube	Percentage of River Water	Percentage of Seawater
1	100	0
2	80	20
3	60	40
4	50	50
5	40	60
6	20	80

- Knowing that river water is usually brownish in color and seawater is clear, how could you use the river water/seawater samples to determine the composition of the estuary water samples?

- Would the method described in question 1 provide a precise measurement of the ratio of river water to seawater in the estuary samples? Why or why not?

Applying Scientific Methods, continued

3. What property of seawater might you use to determine the actual ratio of river water to seawater in the estuary samples? Explain your answer.

4. Would you expect the concentration of salt to be the same or different in each estuary sample? Explain your answer.

5. How might estuary samples taken from deep water affect your results?
