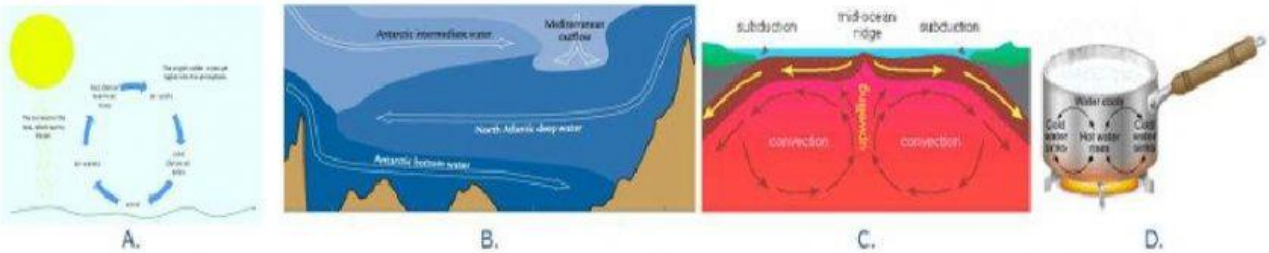
Feb 16 Explain Convection Currents Notes Pt. 1

Directions: Follow along with the class as we work through the notes today.

Convection Currents

- Convection currents occur when heat energy transfers between two parts of a fluid of different temperatures
- When hot fluids rise and cold fluids sink; see examples A-D



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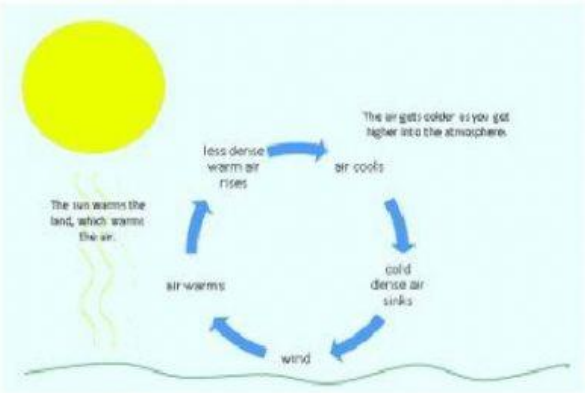
Convection Currents



A. Occurs in the atmosphere

Describe the movement shown in this image.

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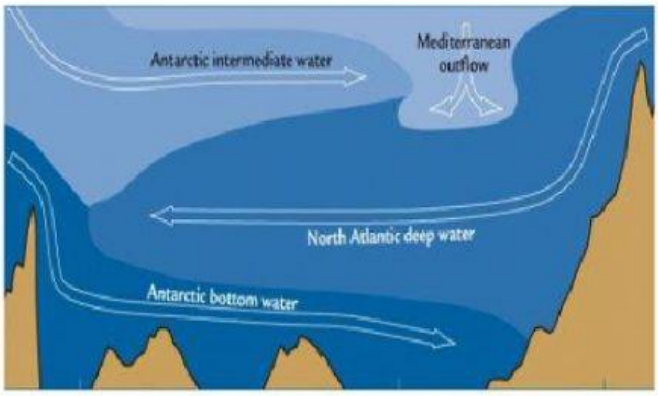
Convection Currents



Describe the movement shown in this image.

B. Occurs in the oceans

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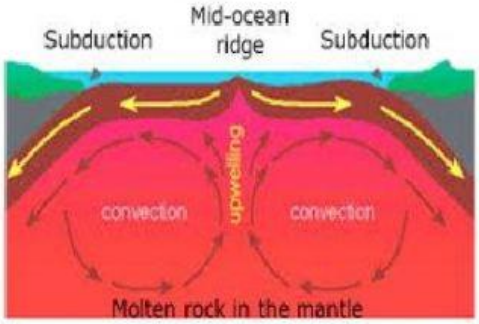
Convection Currents



Describe the movement shown in this image.

C. Occurs in planetary mantles

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Convection Currents

D. Occurs in soup!

Describe the movement shown in this image.

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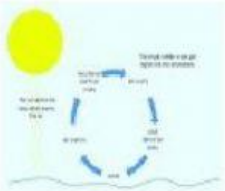
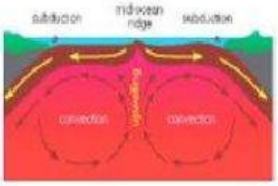
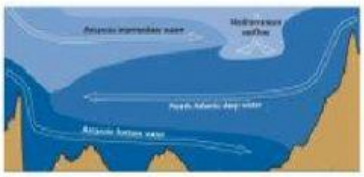
Think About It

There are two components that cause the motion of all four of the examples of convection currents you just saw: energy and gravity.

Energy has to be added to the system to make the movement begin. What are the sources of energy that start the currents in each of the four examples? Which are constant sources of energy, and which change over time?







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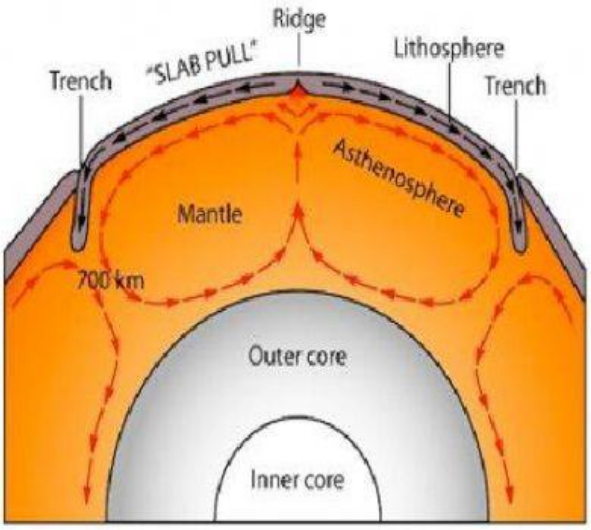
Earth's Mantle

- Convection currents flow within the mantle
- Causes the tectonic plates to move
- Less dense hot magma moves upward
- More dense cooler magma moves downward

How is density related to convection currents?

Convection Currents



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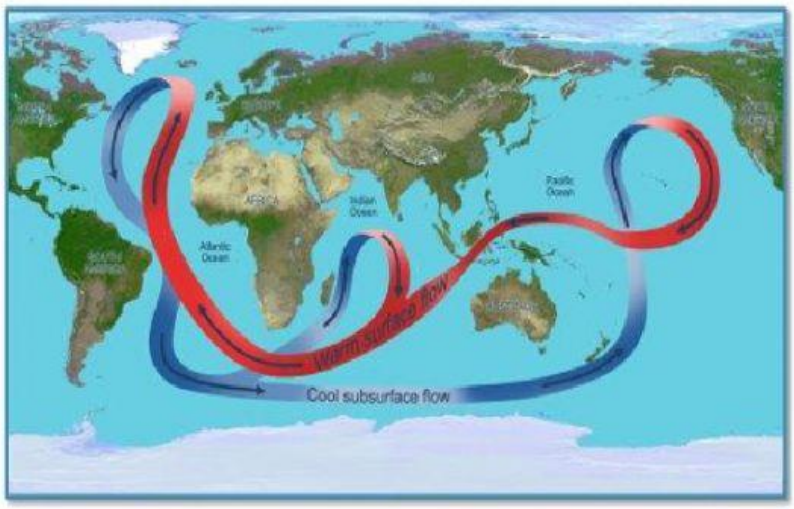
Convection Currents



Earth's Oceans

- Convection currents flow within the oceans
- Temperature (solar heating) and salinity affects the density of water creating global currents
- More dense water sinks
- Less dense water rises

What alters the density of Earth's ocean?

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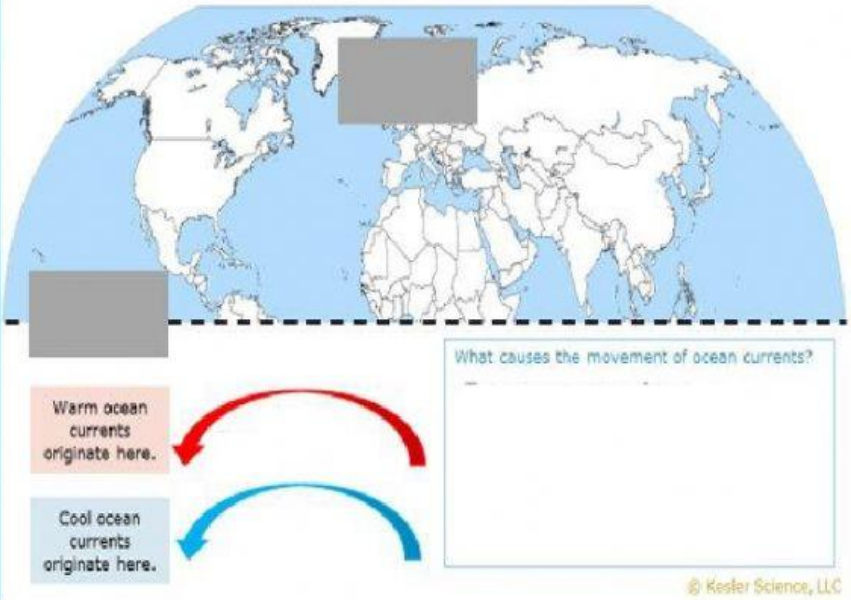
Quick Action: INB

Ocean Currents Notes

Drag and drop the descriptions to identify where cold currents might originate and where warm currents might originate. Use the arrows to represent the warm currents and cold currents. Drag them to map and use the rotate tool to indicate the movement of the currents.

Convection Currents



What causes the movement of ocean currents?

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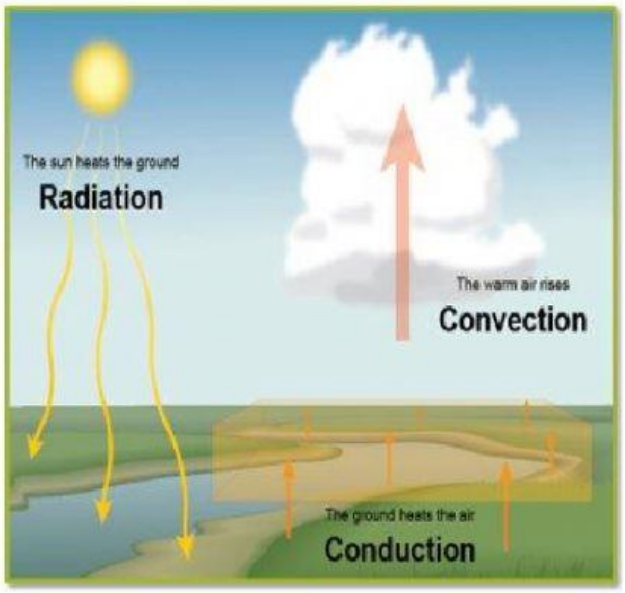
Earth's Atmosphere

- Solar radiation heats the Earth's surface
- That heat is transferred to the air by conduction
- Air touching the Earth's surface expands, becomes less dense and rises

How does the air on Earth's surface get heated?

Convection Currents



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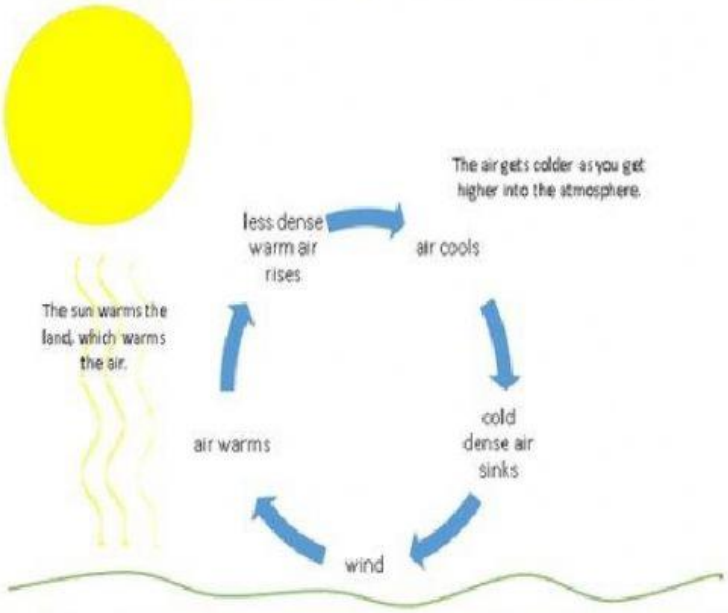
Convection Currents



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Earth's Atmosphere

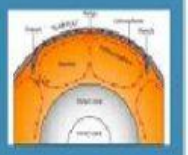
- Air cools as it gets higher into the atmosphere
- Cool air becomes more dense and sinks
- Wind is created as the cool air moves in to replace the warm air

How does altitude affect air temperature?

Quick Action: INB

Convection Currents

Convection currents flow within the mantle which causes the tectonic plates to move.



Convection currents flow in the atmosphere when hot air rises and cool air falls. (This forms wind.)

Convection currents flow within the ocean and cause the ocean's currents.

Convection Currents

Complete the organizer below by clicking on and dragging the correct description and image to their correct location in the chart.

	Image	Description
Earth's Mantle		
Earth's Oceans		
Earth's Atmosphere		

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