Warm-up

You do not have to copy the question!

• Explain what density is in your own words.

• Why do you think hot water floats on top of cold water?

• Why might the density of ocean water change as you move away from the equator?
“Ocean Circulation”
What does it mean to “circulate?”

Ocean water is always moving!
What **causes** water movement?

<table>
<thead>
<tr>
<th>Forces!</th>
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<tbody>
<tr>
<td>– Push or Pull</td>
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1. **Wind**
   - Friction
   - Surface currents

1. **Earth’s Rotation**

2. **Density**
In which **ways** does water **move**?

### Surface Circulation

1. **Surface Current**
   - Water in *horizontal motion*
   - Caused by *wind friction!*

1. **Gyre**
   - "Gyros" = circle
   - **Huge surface current!**
   - 5 global gyres.
Why is his jacket flying back?

Wind!
Friction!
Wind causes currents!

Wind Friction = Force = Push/Pull
Coriolis Effect (also) causes currents!

- Earth’s rotation
  - W → E

- “Bends” motion of:
  - Wind
  - Water
Example:

1. Shoot a rocket from Equator to North Pole.

2. Earth continues to spin

3. “Bends” path
Currents affect climate!

Transfer Heat! Moderate Temp°
Other currents?!

Deep Ocean Circulation!
  – Below ↓

Density Currents
  – ↑ Density = Sinks

Caused By:
1. Latitude
2. Evaporation = __ Salinity = ___ Density