**Waves and Currents Notes**

**Activating Strategy: Watch the video then answer the questions.**

Where is this event happening? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What causes the condition shown in the video? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What do you think is the importance of the condition shown? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Waves**

A \_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a rhythmic movement that carries \_\_\_\_\_\_\_\_\_\_\_ through matter and space. In the ocean, waves move through \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Causes of Waves**

* When \_\_\_\_\_\_\_\_\_\_\_ blows across a body of water, wind \_\_\_\_\_\_\_\_\_\_ is transferred to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* If the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is great enough, the water begins to pile up, forming a \_\_\_\_\_\_\_\_\_\_\_\_\_.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a wave depends on:
	+ The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the wind.
	+ The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ over which the wind blows.
	+ The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ of \_\_\_\_\_\_\_\_\_\_\_ the wind blows.

**Causes of Waves**

* Once set in \_\_\_\_\_\_\_\_\_\_\_\_\_\_, waves continue moving for long distances, even if the wind stops \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ you see lapping at a beach could have formed halfway around the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Ocean Currents**

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are a mass flow of ocean water. Remember the “Finding Nemo” clip.

There are two main types of currents we will be discussing: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Currents and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Currents.

**Surface Currents**

* Surface currents move water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ – parallel to Earth’s surface.
* Surface currents are powered by \_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* The \_\_\_\_\_\_\_\_\_\_\_\_\_ forces the ocean to move in huge, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ patterns.
* There are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ surface currents and \_\_\_\_\_\_\_\_\_\_\_\_\_ surface currents.



* Surface winds and surface currents are affected by the rotation of the Earth (the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_).
* Because Earth rotates toward the \_\_\_\_\_\_\_\_\_\_\_\_\_\_, winds appear to curve to the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hemisphere and to the \_\_\_\_\_\_\_\_\_ in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ hemisphere, this is called the Coriolis Effect.
* So, currents \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the equator turn to the right and currents \_\_\_\_\_\_\_\_\_\_\_\_\_ of the equator turn to the left.

**Coriolis Effect on Surface Currents**

Curving of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ winds

due to the Earth’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Surface Currents Affect Climate**

* The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ absorbs, stores, and moves the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ heat (energy).
* Surface\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ transport this \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ all over the world.
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ currents move warmer water into cooler regions and \_\_\_\_\_\_\_\_\_\_\_\_\_ cooler water to the warmer regions (tropics).
* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can have a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ effect on an area’s
climate or a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ effect on an area’s \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* As \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ water flows from the equator, \_\_\_\_\_\_\_\_\_\_\_\_\_ is released into the atmosphere and the air is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

**Surface Currents Affect Climate**

Think about what you learned in social studies about Europe’s climate. What surface current makes Europe’s climate temperate (mild)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_is a surface current that moves warm water from the tropics to the cooler regions around \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

The video reminded us that the masses of water are moved by wind, but what did they say was the primary cause of ocean currents? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

What factors did we learn influence ocean water’s density?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Temperature, Salinity and Density**

**Density Currents**

* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the ocean, waters circulate not because of wind but because of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
* A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ current forms when a mass of seawater becomes \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ dense than the surrounding water.
* More dense seawater \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ beneath less dense seawater.
* Density currents circulate ocean water \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.