Earth Science Virtual Learning

Earth Science
Global Wind Systems

April 20, 2020

Grade/Course
Lesson: April 20, 2020

Objective/Learning Target:
Students will be able to describe the causes and effects of global wind patterns

Warm Up Activity

1. What is located at each -pause (tropopause, stratopause, etc.)?

2. Where is the ozone located and what is its purpose?

Warm Up Activity

1. At each -pause the temperature inverts and begins going the opposite direction it was. (it either begins increasing or decreasing).

2. Ozone is in the stratosphere and is there to help protect us from harmful UV radiation.

Lesson Activity:

1. Watch the following videos.
2. While watching the videos, take careful notes about global wind patterns on a seperate piece of paper.
3. Answer the questions associated with the video found on the following slide(s)

Links:

Video Link 1

Video Link 2

Practice Questions

1. What creates wind?
2. What are monsoons?
3. What circumstances lead to summer monsoon winds?
4. What two factors determine the directions of the global winds?
5. In what direction does the Earth rotate?
6. Due to Coriolis effect, in what direction does wind curve in the Northern Hemisphere and in the Southern Hemisphere?
7. What are the Westerlies?

Practice Questions Answer Key

1. What creates wind? Differences in temperature and pressure cause wind
2. What are monsoons? Seasonal rainy seasons in India
3. What circumstances lead to summer monsoon winds? They happen when warm, moist air from the Indian Ocean blows northward over the cooler continent.
4. What two factors determine the directions of the global winds? These are caused by the rotation of the Earth, and unequal heating of Earth's surface
5. In what direction does the Earth rotate? From west to east.

Practice Questions Answer Key

6. Due to Coriolis effect, in what direction does wind curve in the Northern Hemisphere and in the Southern Hemisphere? In the northern hemisphere, they curve to the right, while they curve to the left in the southern hemisphere.

7. What are the Westerlies? The general wind direction over most continents- from west to east. This causes most weather systems to move from west to east.

More Practice Questions.

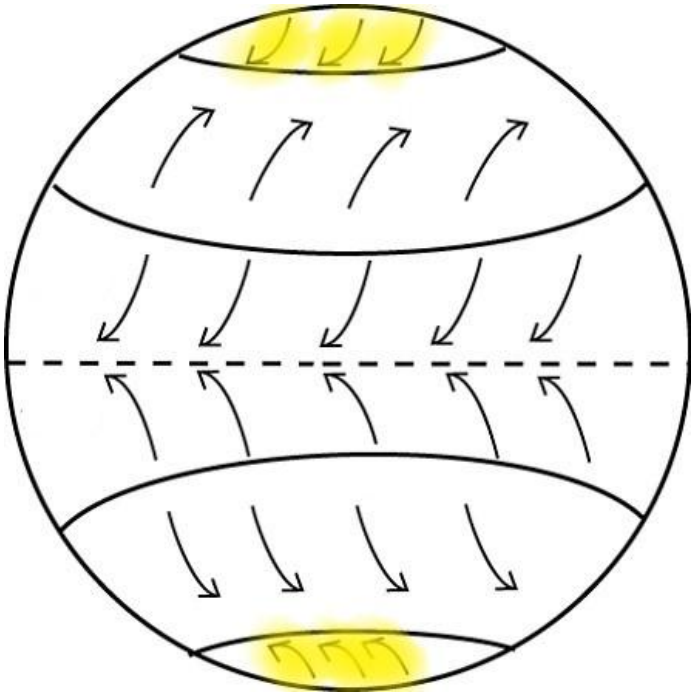
Answer the questions on the following slides on a seperate piece of paper.

More Practice: Fill in the table on your own sheet of paper.

Wind	Location
Polar Easterlies	
Westerlies	
Trade Winds	
Doldrums	
Horse Latitudes	

More Practice Questions

Which global winds are highlighted in the image?



More Practice Questions

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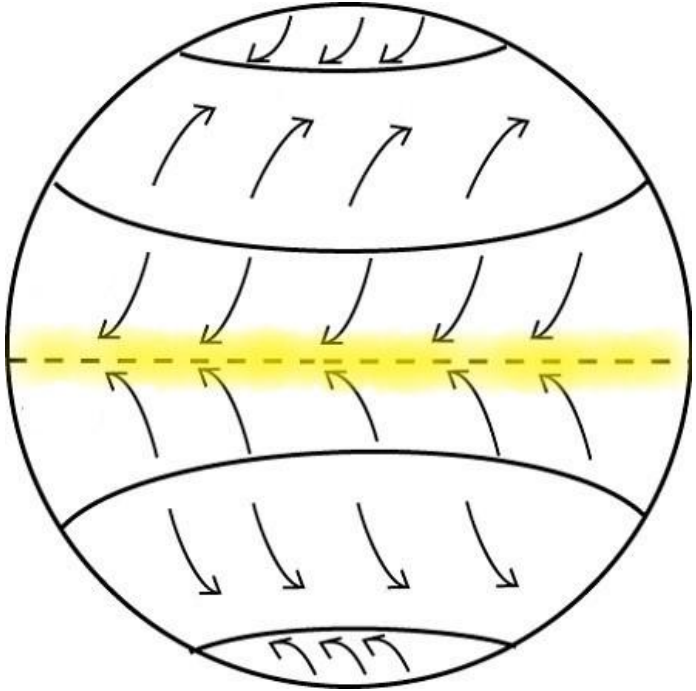

More Practice Questions

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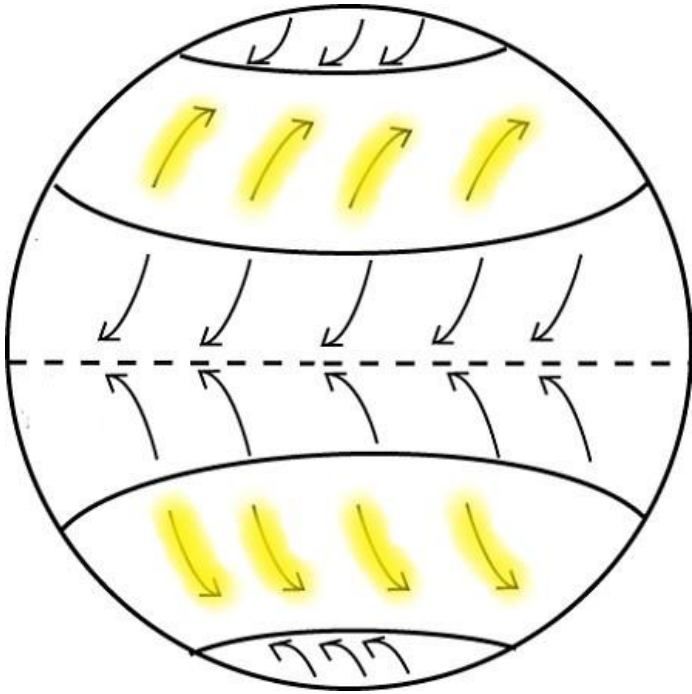

More Practice Questions

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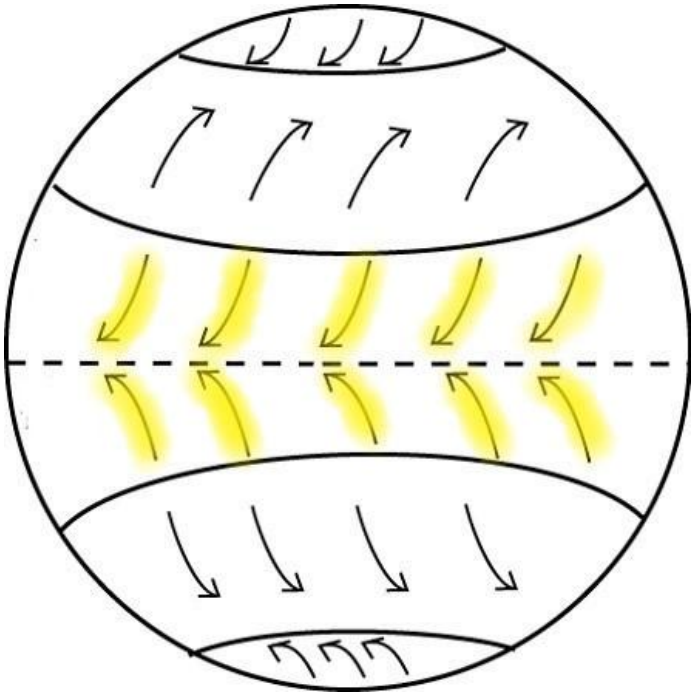

More Practice Questions

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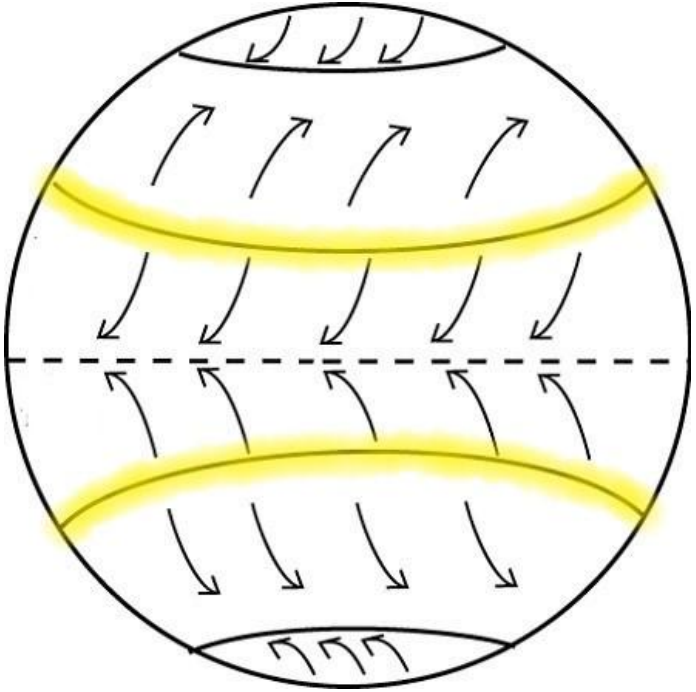


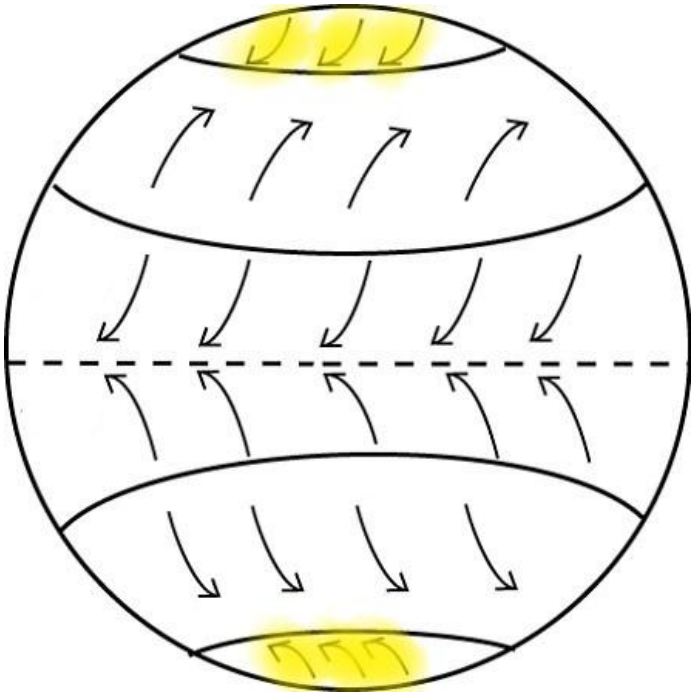
More Practice Answer Key: amend your answers if needed.

Wind	Location
Polar Easterlies	Poles to 60 deg north and 60 deg south
Westerlies	30-60 degrees N and S latitudes, blowing toward poles
Trade Winds	30 degrees N latitude and 30 degrees S latitude, blowing toward equator
Doldrums	Located over the equator- very little wing
Horse Latitudes	30 degrees N latitude and 30 degrees S latitude

More Practice Questions Answer Key

Which global winds are highlighted in the image?

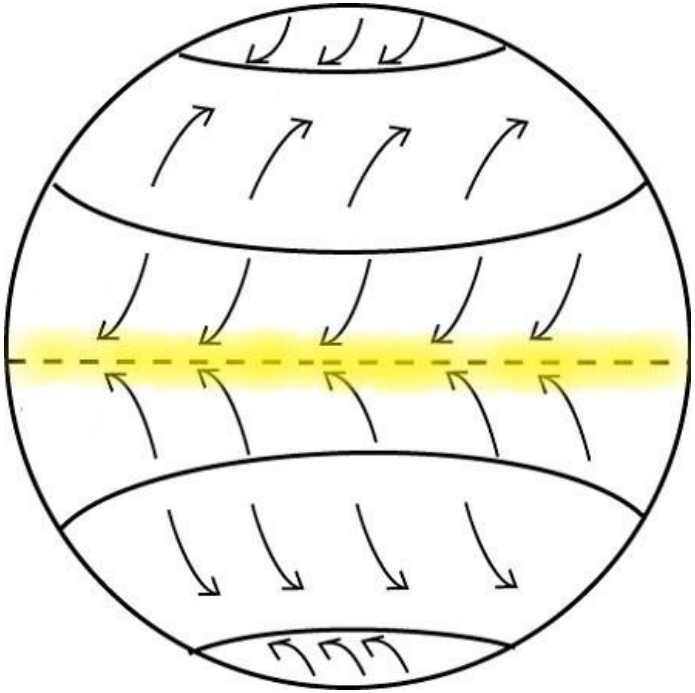
Polar Easterlies- remember that the winds are named by the direction that they blow FROM.



More Practice Questions Answer Key

Which global winds are highlighted in the image?

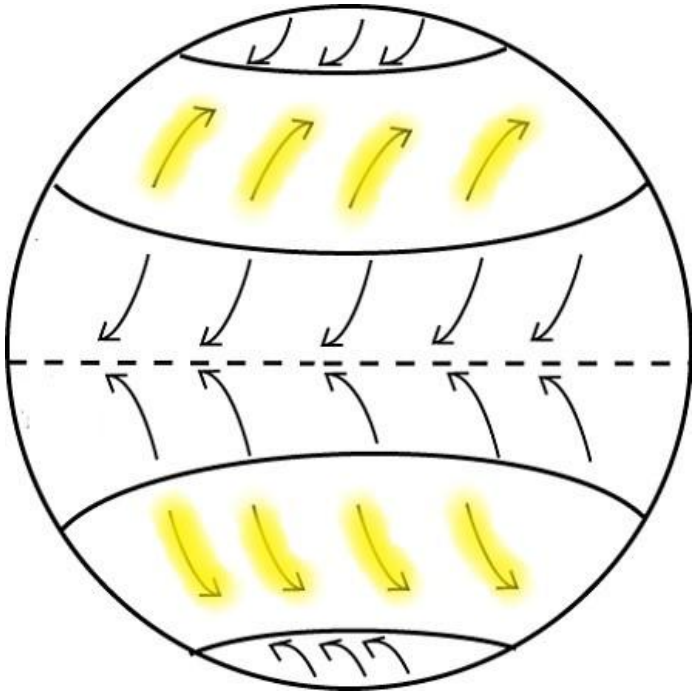
Doldrums- this is an area of weak winds, due to warm air rising at the equator



More Practice Questions Answer Key

Which global winds are highlighted in the image?

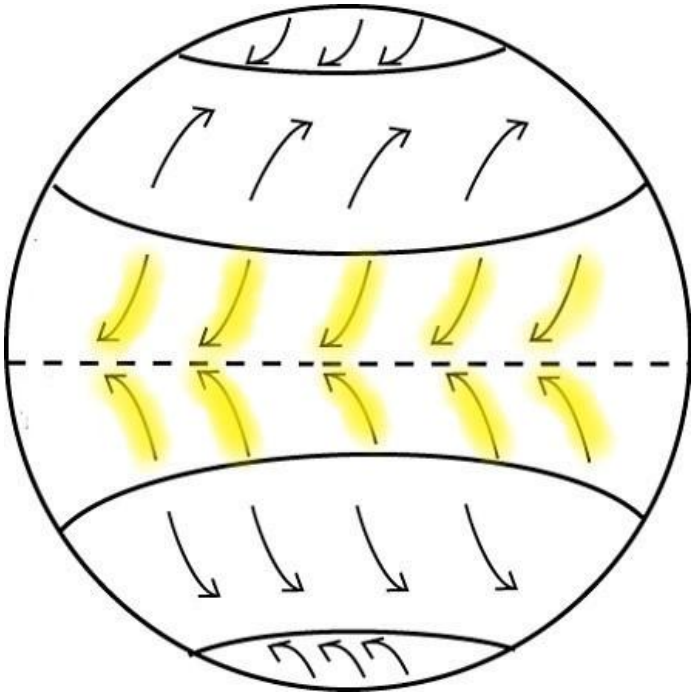
Westerlies- these blow out of the west and are the winds that cause weather systems to cross the USA.



More Practice Questions Answer Key

Which global winds are highlighted in the image?

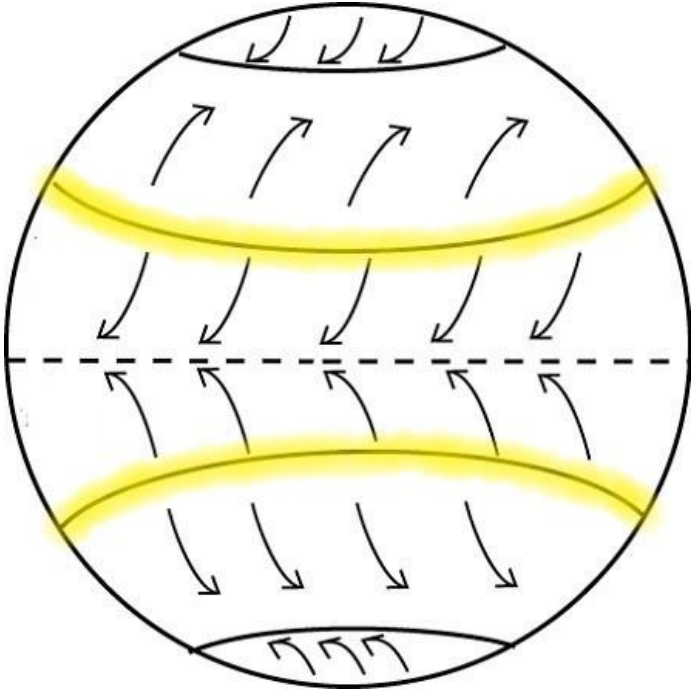
Trade Winds- these blow from the east to the west and were used by merchant ships sailing from the east towards the “new world.”



More Practice Questions Answer Key

Which global winds are highlighted in the image?

Horse Latitudes- similar to the doldrums of the equator- these are areas of rising air, so there are calm winds here.



Extra Resources:

Here is an extra video over global winds: Global Winds

Here is a video over one of the causes of global winds: The Coriolis Effect

Here is a reading that explains global winds: Global Winds Explained

Here is another good reading about global winds: Global Wind Types