

Planetary Wind Belts

Answer these questions using the photocopy of the wind belt diagram that has been enlarged from page 14 of your ESRT and the diagram on the back of this ditto.

- 1) Color in convection currents—use red for rising arrows, blue for sinking arrows. Leave arrows moving horizontally uncolored. Make a key for this (“rising air” and “sinking air”)
- 2) Color in surface winds in the northern hemisphere a third color, and surface winds in the southern hemisphere a fourth color. Make a key for these colors as well.
- 3) Draw a compass rose on the diagram indicating N,S,E,W.
- 4) Label each latitude as either high pressure or low pressure. Do this by determining the latitudes where wind is coming from (high pressure) and latitudes where it is moving towards (low pressure.) OR consider where air is rising (low pressure) and where air is sinking (high pressure.) ****Label the pressure at both poles even though the latitudes are not written.**

5) Are winds named for where they blow towards or where they come from?

6) What direction (right or left) are winds deflected from a straight line in the northern hemisphere?_____ In the southern hemisphere?_____

7) These deflections are due to the Coriolis Effect and are due to the earth's _____

8) Why is the equator an area where air is rising (low pressure)?_____

9) The air rising from the equator spreads out in both a northerly and southerly direction and then sinks back down at 30°N and 30° S latitude.

Using the concept of density, why might it sink the farther away it travels from the equator?

10) Why are the poles an area where air is sinking (high pressure)?_____

11) The air from the poles spreads out along the ground as a wind, and moves towards 60° N and 60° S. Then it starts to rise again at 60° N and 60° S.

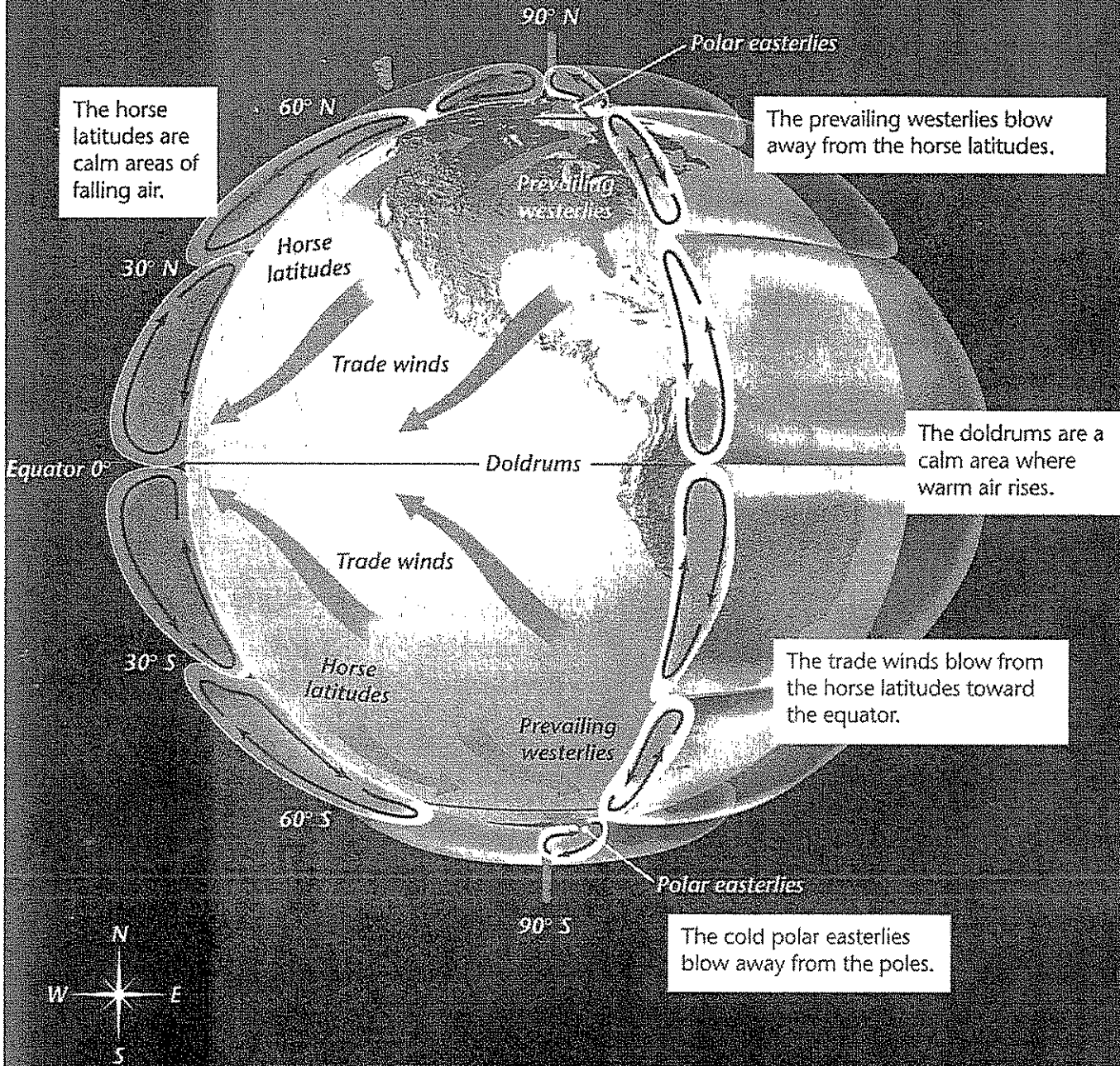
Using the concept of density, why might the air rise the farther it travels from the poles?_____

12) The diagram of the planetary wind belts shows the location of the belts near the time of an equinox. The locations shift somewhat with the changing latitude of the Sun's vertical (direct) ray. In the Northern Hemisphere, the belts shift northward near the time of the summer solstice and southward near the time of the winter solstice.

Why do the windbelts shift during the times described above?_____

EXPLORING *Global Winds*

A series of wind belts circles Earth. Between the wind belts are calm areas where air is rising or falling.



Planetary Wind and Moisture Belts in the Troposphere

