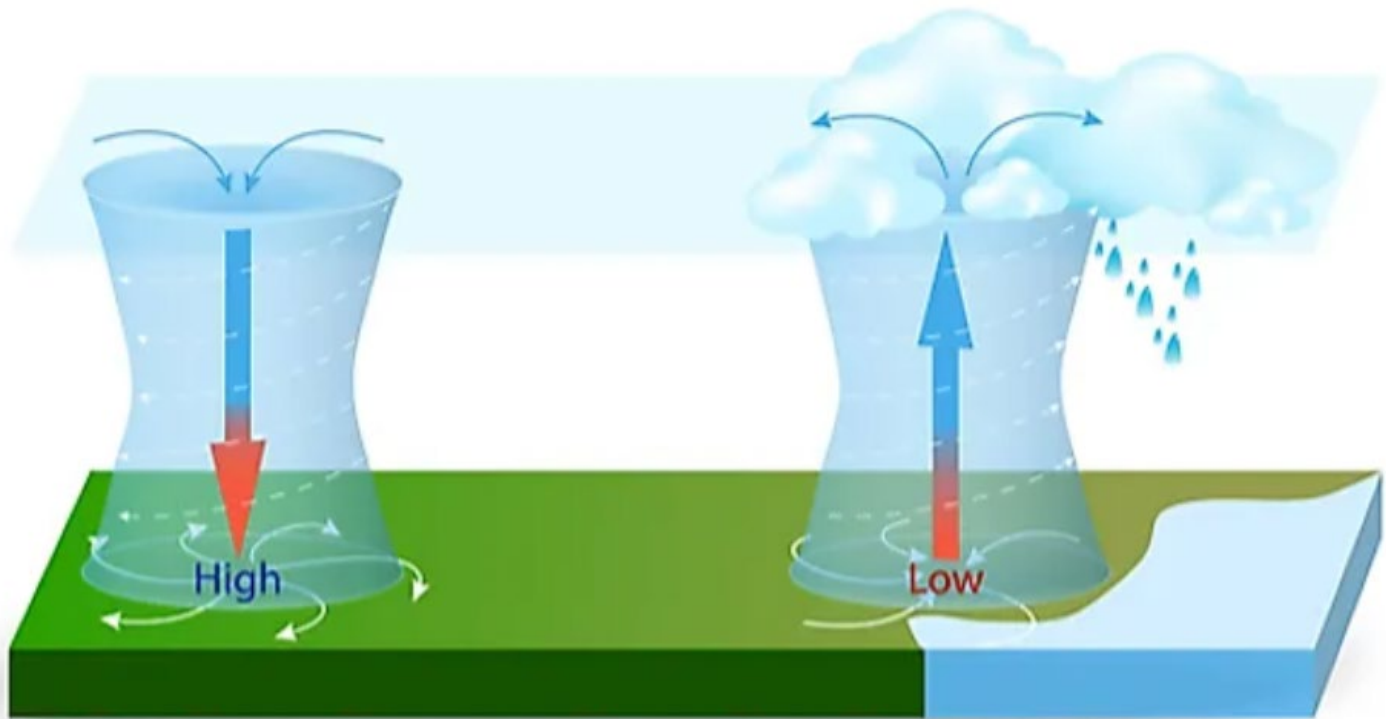


CYCLONES AND ANTICYCLONES

A cyclone is spinning, rising air. Rising air gets cooler as it goes up due to 1) being higher in the troposphere and 2) expansion due to less air pressure. Recall that when air expands it cools down (adiabatic cooling). Notice also that the air beneath the cyclone is converging, (colliding) and since it can't move down into the earth, it moves up. The rising air makes clouds and precipitation. A person standing under a cyclone would be experiencing precipitation of some type. The amount of precipitation would depend on how wet the rising air is.

An anticyclone is the exact opposite of a cyclone. The air is sinking and is getting warmer as a result. The lower in the troposphere it goes, the warmer it gets. It is also compressing, so adiabatic heating is taking place. An anticyclone makes no clouds (in fact, clouds disappear as droplets turn back into water vapor). A person standing under an anticyclone would see nothing but blue skies.



Anticyclones

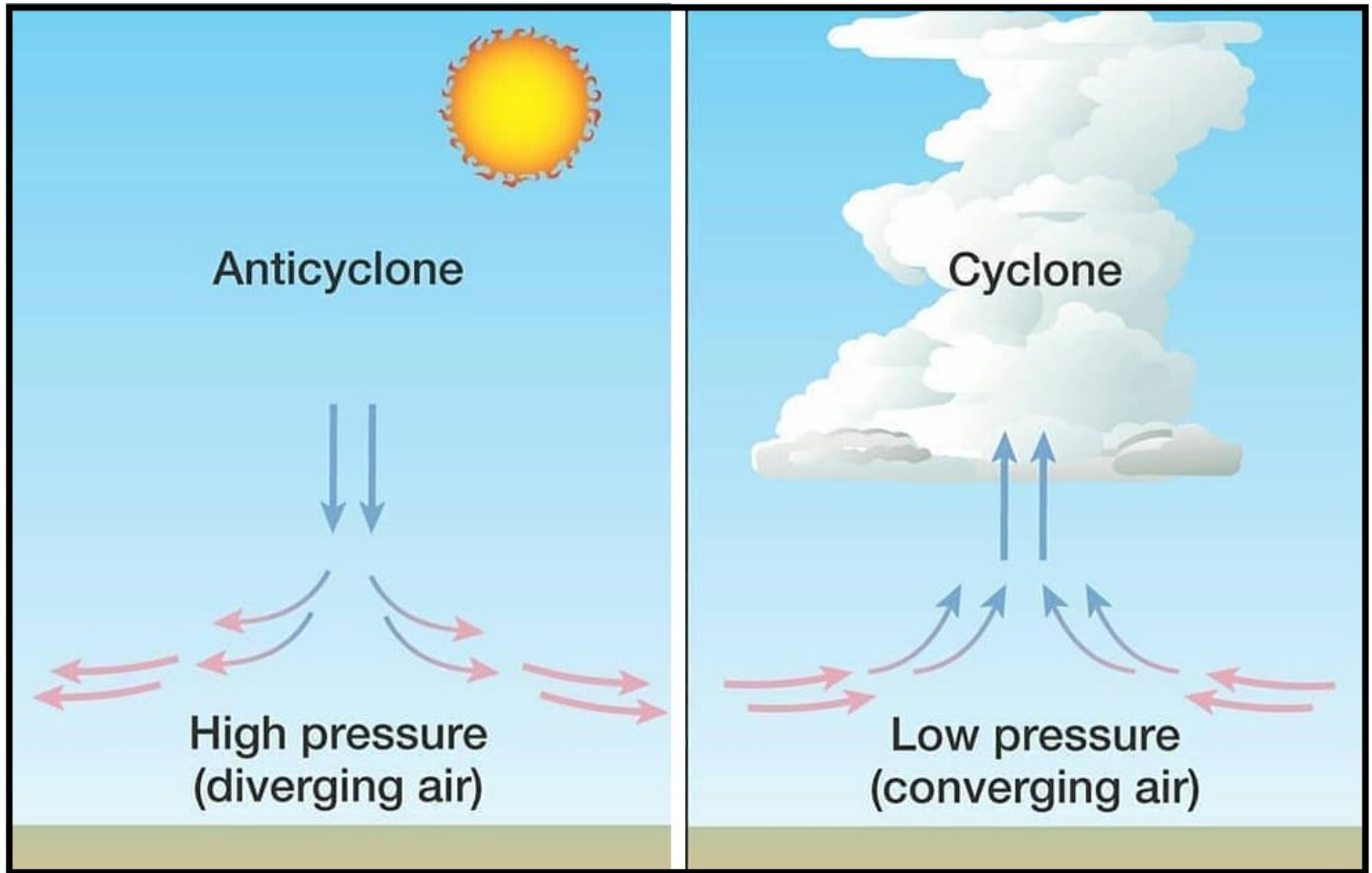
Cyclones

FILL IN THE CHART BELOW WITH X'S

		YES	NO
1	A cyclone has sinking air		
2	An anticyclone has sinking air		
3	Cyclones and anticyclones both have spinning air		
4	You would see clouds above an anticyclone		
5	You would see clouds above a cyclone		

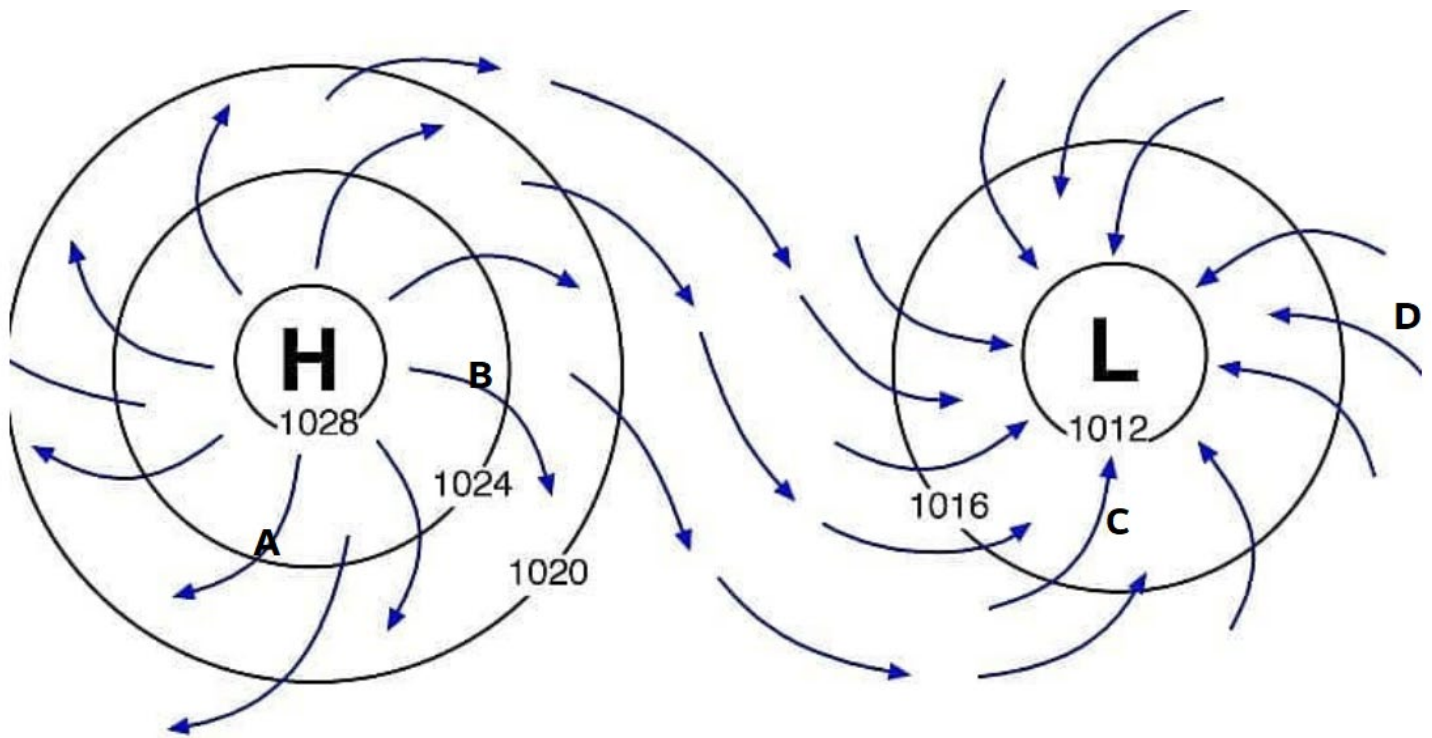
6	Cyclone wind is converging toward the center near Earth's surface		
7	Anticyclone wind is diverging away from the center near Earth's surface		
8	Air heats up as it rises in a cyclone		
9	Air heats up as it sinks in an anticyclone		
10	A person would experience blue skies and no rain in an anticyclone		
11	A person would experience blue skies and no rain in a cyclone		
12	Clouds turn back into invisible water vapor as air sinks		
13	Clouds turn back into invisible water vapor as air rises		

When air is lifting, it is called “low pressure” because the weight of air is NOT pushing down like usual. When air is sinking, it is called “high pressure” because air is pushing downward. When sinking air hits the ground it diverges (spreads out) because it has nowhere else to go. This sideways movement of air is called wind. Winds from high pressure systems often feed into low pressure systems.



1. What kind of pressure is it if air is rising?
2. What kind of pressure is it if air is sinking?
3. Why does anticyclone air diverge?
4. What does converge mean?
5. The sideways arrows going from the high pressure to the low pressure near the surface of Earth represent what?

This picture shows a bird's eye view of the previous picture. This is what a high pressure and low pressure system looks like from the top down. Notice that there are circles surrounding the H (high pressure) and L (low pressure). These are called isobars and represent areas with a particular amount of pressure. The higher numbers mean higher pressure. The lower numbers mean lower pressure. The number 1013 means neither high nor low pressure. Wind always moves from higher pressure areas to lower pressure areas.



6. Put an X in the area where wind is blowing from the anticyclone to the cyclone.
7. Letter A represents wind moving in what direction?
8. Letter B represents wind moving in what direction?
9. Letter C represents wind moving in what direction?
10. Letter D represents wind moving in what direction?
11. The winds spreading out from the high pressure are said to be (converging or diverging)?
12. The winds colliding into the low pressure are said to be (converging or diverging)?