

Name _____

AIR PRESSURE & TORNADOES

Directions: Read the information below.

How Tornadoes are Created

Summertime is filled with fun in the sun, but if you live in an area of the country called “Tornado Alley,” it can also be a dangerous time of year. A tornado can cause winds over 100 miles per hour and damage homes, cars, and anything else in its path. Luckily, people called meteorologists are able to analyze weather conditions to predict when a tornado might occur before it happens. How do they know if a tornado could happen in the future? Several factors are monitored, one of them being air masses.

Air molecules are either part of high pressure systems or low pressure systems. Air likes to move from high pressure areas to lower pressure areas. Think about a bunch of people standing in an elevator — the people are like air molecules. There’s not a lot of room to move around in a crowded elevator, so once the door opens up they move outside where they have more room. When air moves to a lower pressure area, it generally moves upward to a higher elevation. Air flow in high-pressure systems moves in a clockwise direction and upward. In a low-pressure system, air will flow counter clockwise and downward. What stops the upward and downward motions of the two types of air flows from mixing?

There is a type of barrier in the atmosphere called a cap. Below this cap is where the higher pressure lies. As long as this cap is in place, we have nothing to worry about. However, sometimes the high-pressure systems are so strong they can weaken the cap and break through. When the cap is weakened we can experience thunderstorms and, if severe enough, tornadoes. This happens when high and low air flows have no barrier from each other. Remember in an elevator the inside is like a high pressure system, with the door separating the people from the outside. Once the door opens, they’re allowed to move. Low-pressure molecules are blowing counterclockwise, high-pressure molecules are flowing the other direction. The upward lift of the high pressure air creates the funnel we see in a tornado.

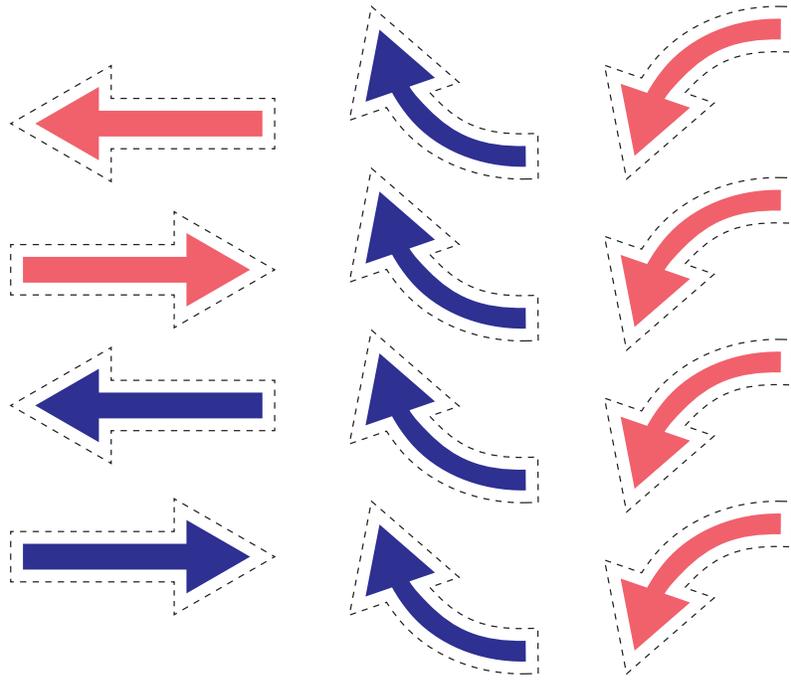
Of course, there are many other factors that contribute to the development of severe weather. The next time you’re in a thunderstorm, remember everything that’s going on above you!

Directions: Answer the questions below.

1. What is one thing that stops tornadoes from forming, based on the text?
2. The text used an example of an elevator to demonstrate how air molecules move from high- to low-pressure areas. Can you think of another example of times when people move from a crowded, high-pressure area to a less crowded, low-pressure area?

Directions: Use the image below to show how air molecules move from areas of high pressure to low pressure. Draw the molecules and arrows for their movement.





Directions: Cut out the arrows above, then glue them to the image below to illustrate how air pressure moves during a tornado.

