

## VOCABULARY

### ACADEMIC VOCABULARY

#### Phenomenon

an object or aspect known through the senses rather than by thought or intuition

*Students observing the phenomenon realized later that the powerful wind was a microburst.*

### Concepts In Motion

**Interactive Figure** To see an animation of tornado formation, visit [glencoe.com](http://glencoe.com).

## Tornadoes

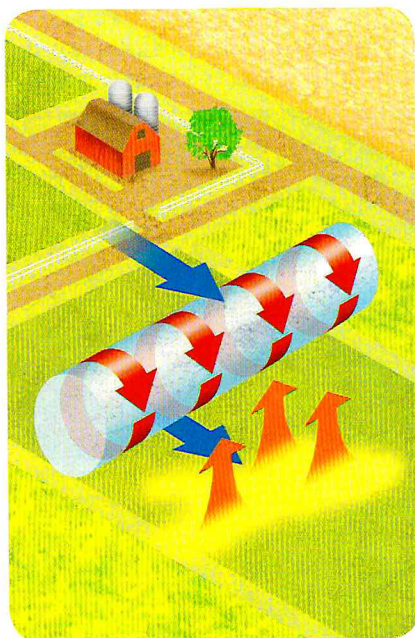
In some parts of the world, the most feared form of severe weather is the tornado. A **tornado** is a violent, whirling column of air in contact with the ground. Before a tornado reaches the ground, it is called a funnel cloud. Tornadoes are often associated with supercells—the most severe thunderstorms. The air in a tornado is made visible by dust and debris drawn into the swirling column, sometimes called the vortex, or by the condensation of water vapor into a visible cloud.



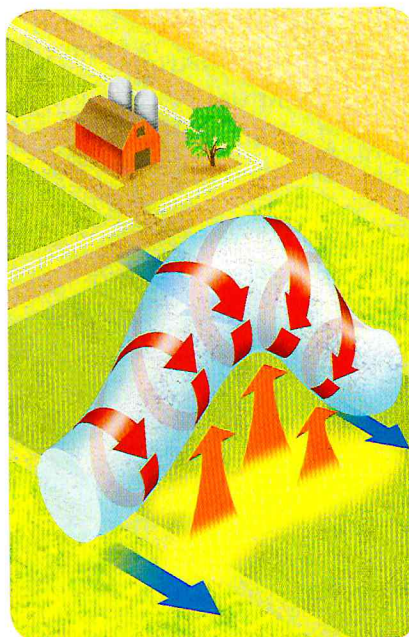
**Reading Check** Define the term *tornado*.

**Development of tornadoes** A tornado forms when wind speed and direction change suddenly with height, a phenomenon associated with wind shear. Current thinking suggests that tornadoes form when small pockets of cooler air are given a horizontal rolling-pin type of rotation near Earth's surface, as shown in **Figure 13.10**. If this rotation occurs close enough to the thunderstorm's updrafts, the twisting column of wind can be tilted from a horizontal to a vertical position. As updrafts stretch the column the rotation is accelerated. Air is removed from the center of the column, which in turn lowers the air pressure in the center. The extreme pressure gradient between the center and the outer portion of the tornado produces the violent winds associated with tornadoes. Although tornadoes rarely exceed 200 m in diameter and usually last only a few minutes, they can be extremely destructive. A tornado is classified according to its destructive force.

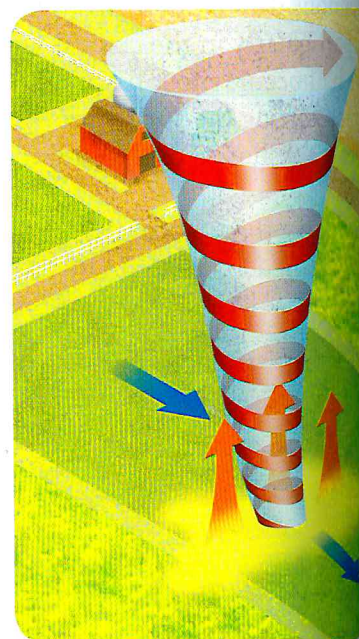
**Figure 13.10** Tornado formation is associated with changes in wind speed and direction.  
**Infer** what would cause the updrafts.



A change in wind direction and speed creates a horizontal rotation in the lower atmosphere.



Strong updrafts tilt the rotating air from a horizontal to a vertical position.



A tornado forms within the rotating winds.