

Study Guide
Chapter 13 – The Weather

GPS: S6E3. Students will recognize the significant role of water in Earth's processes.

b. Relate various atmospheric conditions to stages of the water cycle.

S6E4. Students will understand how the distribution of land and oceans affects climate and weather.

a. Demonstrate that land and water absorb and lose heat at different rates and explain the resulting effects on weather patterns.

b. Relate unequal heating of land water surfaces to form large global wind systems and weather events such as tornados and thunderstorms.

c. Relate how moisture evaporating from the oceans affects the weather patterns and the weather events such as hurricanes.

S6E6. Students will describe various sources of energy and with their uses and conservation.

a. Explain the role of the Sun as the major source of energy and the Sun's relationship to wind and water energy.

1. Evaporation is the process by which water molecules in liquid water escape into the air as water vapor.
2. Humidity is a measure of the amount of water vapor in the air.
3. Molecules of water vapor in the air become liquid water in the process of condensation.
4. The two conditions required for condensation is cooling of the air and the presence of particles in the air.
5. The temperature at which condensation begins is called the dew point.
6. Scientists classify clouds based on their shape and by their altitude.
7. Wispy, feathery clouds that form at high levels where the temperatures are low are known as Cirrus clouds.
8. Clouds that look like fluffy, rounded piles of cotton are called Cumulus clouds.
9. Clouds that form in flat layers and usually cover all or most of the sky and are a uniform dull, gray color are called Stratus clouds.
10. Precipitation is any form of water that falls from clouds and reaches Earth's surface as rain, sleet, hail, or snow.
11. A storm is a violent disturbance in the atmosphere and involve sudden changes in air pressure and rapid air movements.
12. Thunderstorms form in large cumulonimbus clouds, also known as thunderheads.
13. During a thunderstorm, you should avoid objects that can conduct electricity, such as metal objects and bodies of water.
14. One safe place to be during a thunderstorm is in a low area away from trees, fences, and poles.
15. A tornado is a rapidly whirling, funnel-shaped cloud that reaches down from a storm cloud to touch Earth's surface.
16. Weather patterns on the Great Plains (states include Iowa, Nebraska, Kansas, Oklahoma, and Texas) result in a tornado alley.
17. The safest place to be during a tornado is in a storm shelter or the basement of a well-built building.
18. A hurricane is a tropical cyclone that has winds of 119 kilometers per hour or higher.
19. A hurricane begins over warm Oceans water as a low-pressure area, or tropical disturbance.
20. When the center or eye of the hurricane arrives, weather changes suddenly and the air grows calm and the sky may clear.
21. If you hear a hurricane warning and are told to evacuate, you should leave the area immediately – even if it is only temporary.
22. Meteorologists are scientists who study causes of weather and try to predict it.
23. Meteorologists often use radar to track areas of rain or snow and to locate severe storms or follow the path of a storm system.
24. Isobars are lines joining places on the map that have the same air pressure.
25. Color bands on a weather map are used to indicate different temperature ranges. (figure 27)