

Weather

What is weather? - Reading

WEATHER, the temporary state of the atmosphere. Six meteorological elements make up the weather: air temperature, barometric pressure, wind velocity, humidity, clouds, and precipitation. People commonly think of the weather in relation to the state of the sky—the weather may be clear or cloudy, fair or rainy, and so forth.

Ultimately, the atmospheric changes called weather are caused by the sun's rays. The sun causes variations in the temperature of the atmosphere. Warm masses of air are created by sunshine, and the warm air rises to be replaced by cooler air. Thus, winds are created. The sun also evaporates water, which furnishes the water vapor that becomes clouds and precipitation.

Weather must not be confused with climate. Climate is the accumulation of the effects of many years of weather. Today on the desert the sky may be cloudy, and rains may pour onto the parched land. This is the weather over the desert for a single day. The climate, however, is indicated by the cracked soil, the sparse vegetation, and the type of creatures that survive. Obviously, the weather is not generally rainy in the desert over an extended period.

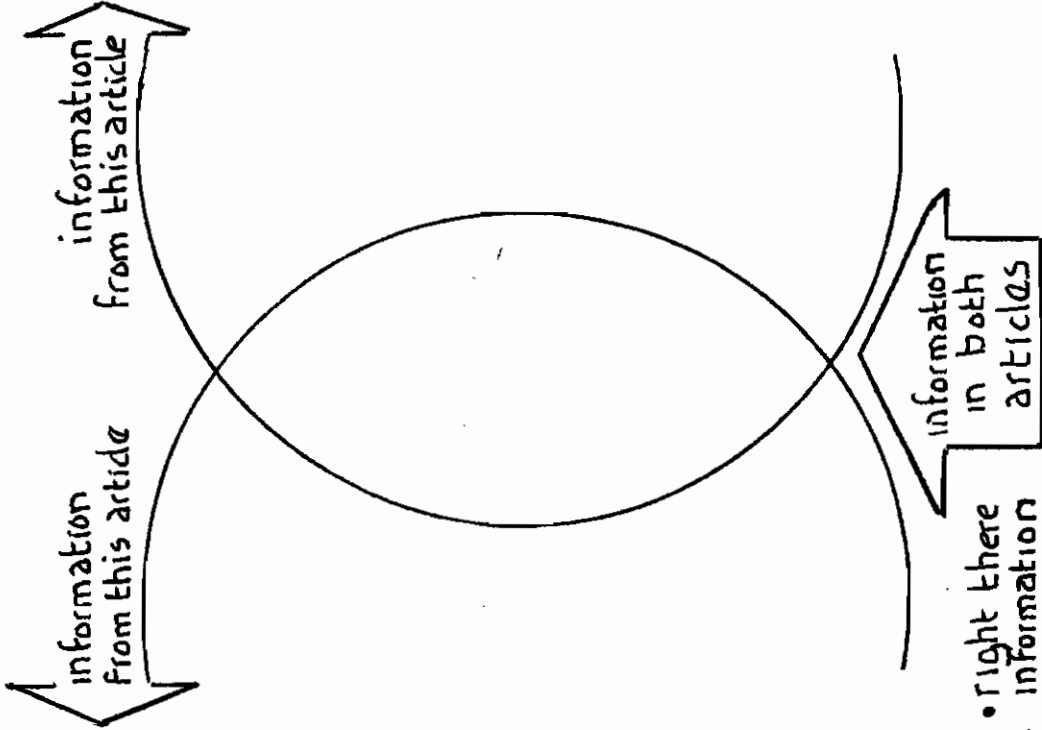
Our goal is to compare and contrast information on similar material gathered from different sources.

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Investigation 1

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WEATHER includes all the daily changes in temperature, wind, moisture, and air pressure. It affects everyone. Today's weather may make us feel hot or cold. We may get soaking wet in a sudden shower, or have to struggle through deep snow. Bright sunshine may make the day cheerful and happy. Dark, dull clouds may make us sad and unhappy. Too much rain can cause floods. Too little rain may kill farm crops.

We cannot change the weather very much at present, but we can adjust ourselves to it. We put on raincoats when it rains, and boots when it snows. We heat our homes in cold weather and cool them in hot weather.

Weather plays an important part in many human activities. Farmers need good weather so that their crops will grow and ripen. Storms or sudden frosts can destroy valuable crops. This raises the prices we pay for food at our neighborhood stores. Weather even affects sales in department stores. Fewer persons shop in rainy or snowy weather. Transportation and communication also suffer in bad weather. Snow may make trains late. Fog often prevents airplanes from taking off. Icy highways slow automobile and truck traffic. Storms can break tele- phone and electric-power lines. Ships at sea often have to change their courses to avoid bad weather. In war- time, weather plays an important part in planning military operations. During World War II, a storm over the English Channel delayed the Allied invasion of France for a day.

Weather forecasting helps us fit our plans to future weather. We can hear weather forecasts on the radio, watch them on television, and read them in the news- paper. *Meteorologists*, the scientists who study weather, gather information about weather conditions and pre- dict what the weather will be tomorrow, next week, or even next month. The weatherman's forecasts may save thousands of lives and millions of dollars in property. Forecasters warn fruitgrowers of early frosts and give them time to set out smudge pots. Ranchers who learn of storms in advance have a chance to shelter their cattle. Weathermen track destructive hurricanes and tell people when to expect floods. They also help fam- ilies plan picnics, vacations, and other activities.

Weather is not the same as climate. *Climate* is a sum- mary of weather conditions in a certain region for a period of many years. Climate is based on average tem- peratures, average amounts of rain and snow, and aver- ages of sunshine, wind, and humidity.

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