Facts about Science

The earth is surrounded by a layer of gas molecules that we call the atmosphere. The atmosphere is full of air. The air in our atmosphere is made up of molecules of different gases. The most common gases in the atmosphere are nitrogen (78%) and oxygen (21%).

Picture from: cleantalk.org

Wind is the movement of these gas molecules in the atmosphere. So wind is moving air. What causes air to move? Wind is caused by differences in air pressure between different areas. The molecules in air normally move from areas of higher pressure to areas of lower pressure. This means that winds flow from high pressure to low pressure areas. A high-pressure area is an area where there are a lot of molecules present. These molecules exert more pressure than where there are fewer molecules. Temperature also plays a role in the formation of wind. Sunlight heats the earth’s surface. Different materials are warmed differently. If the sun shines on a rock and on water next to each other, the temperature of the rock will be higher than the temperature of the water. The heated surfaces then heat the air close to the specific surface. This heated air expands, becomes lighter and starts to rise creating an area of lower pressure. Cooler air then moves in towards the lower pressure area to replace the rising warm air. This movement of cooler air makes the wind blow. An example of how a wind is formed is the typical sea breeze that forms during the day. During daytime the land warms quicker than the seawater. This causes the air just above the land to be hotter than the air above the water. The air above the ground expands and starts rising, causing a pocket of low pressure above the ground. The hot air moves upward and high up over the land a pocket of high-pressure forms. This air then starts moving out towards the sea where the pressure is lower. Air begins bunching up over the ocean causing the air pressure above the sea to become higher than the pressure of the air just above the ground. The air near the surface of the ocean starts flowing back to the lower pressure pocket above the land. Bathers experience this wind as a nice cool sea breeze.