Global and Local Winds

Air Movement

Is the movement of air caused by differences in air pressure • The greater the difference, the faster the wind moves

Air Pressure

 Differences in air pressure are caused by the uneven heating of Earth Uneven heating produces pressure belts which occur every 30° latitude



Pressure Belts

 As warm air rises at the equator and moves toward the poles, it cools • As it cools, some of the air sinks around 30° north and south of the equator

Pressure Belts

• At the poles, cold air sinks and moves towards the equator Around 60° north and south, the air begins to heat up and rise

Global Winds The combination of pressure belts and the Coriolis Effect cause global winds These are polar easterlies, prevailing westerlies, and trade winds



Polar Easterlies

 Wind belts that extend from the poles to 60° latitude Formed from cold sinking air moving from the poles creating cold temperatures



Prevailing Westerlies

 Wind belts found between **30° and 60° latitude** Flow towards the poles from west to east carrying moist air over the United States



Trade Winds

 Winds that blow from **30° almost to the** equator Called the trade winds because of their use by early sailors



Doldrums

 Located along the equator where no winds blow because the warm rising air creates and area of low pressure

Horse Latitudes

 Occur at about 30° north and south of the equator where the winds are very weak Most deserts on the Earth are located here because of the dry air

Jet Stream

 The jet streams are narrow belts of high in the upper troposphere and lower stratosphere Separates warm air from cold air



Local Winds

 Generally move short distances and can blow in any direction Caused by geographic features that produce temperature differences

Sea Breezes

 High pressure is created over the ocean during the day and low pressure over land due to uneven heating Air moves from the ocean to the land creating a sea breeze



air over the sea.

Land Breezes

 Low pressure occurs over the ocean during the night and high pressure over land due to the uneven heating of earth This causes wind to move from the land to the ocean creating a land breeze



'Warm' sea

During relatively calm clear nights the land cools down faster than the sea, so the air above it becomes denser than the air over the sea, and sinks down towards the coast

Question 1

What causes winds?

Answer

 Winds are caused by the uneven heating of Earth's surface, which causes pressure differences

Question 2

• What are the three types of global winds?

Answer

Polar Easterlies Westerlies Trade Winds

Question 3

• What is the difference between a land breeze and a sea breeze?

Answer

 Sea breezes occur during the day when the land is warmer than water and a land breeze occurs at night when the water is warmer than land