

# Weather Factors

Energy in Earth's Atmosphere

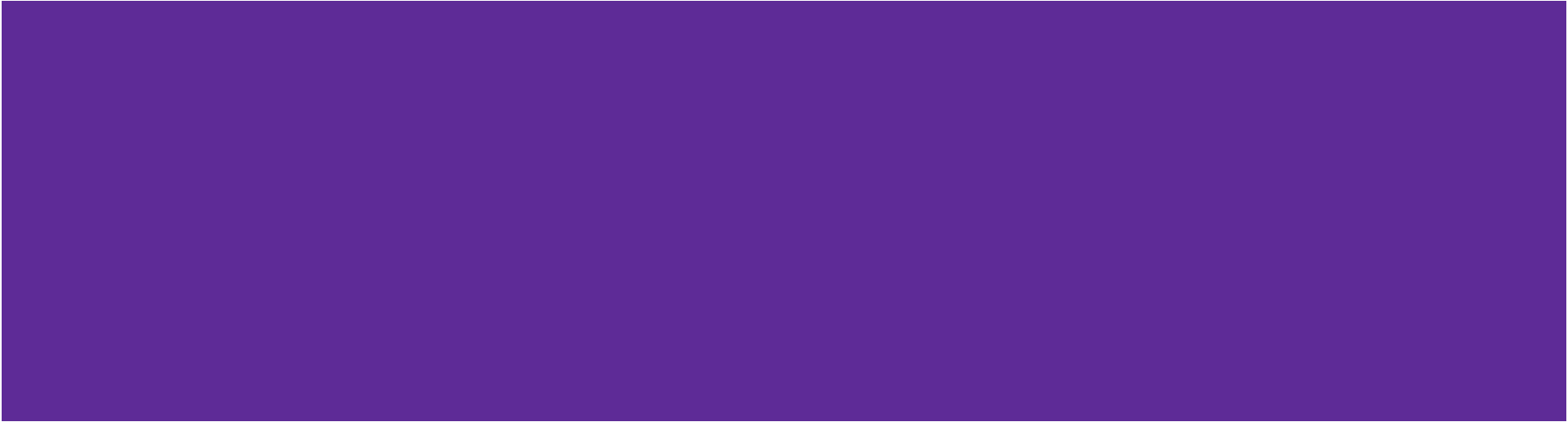
Heat Transfer

Winds

Water in the Atmosphere

Precipitation

# Energy in Earth's Atmosphere



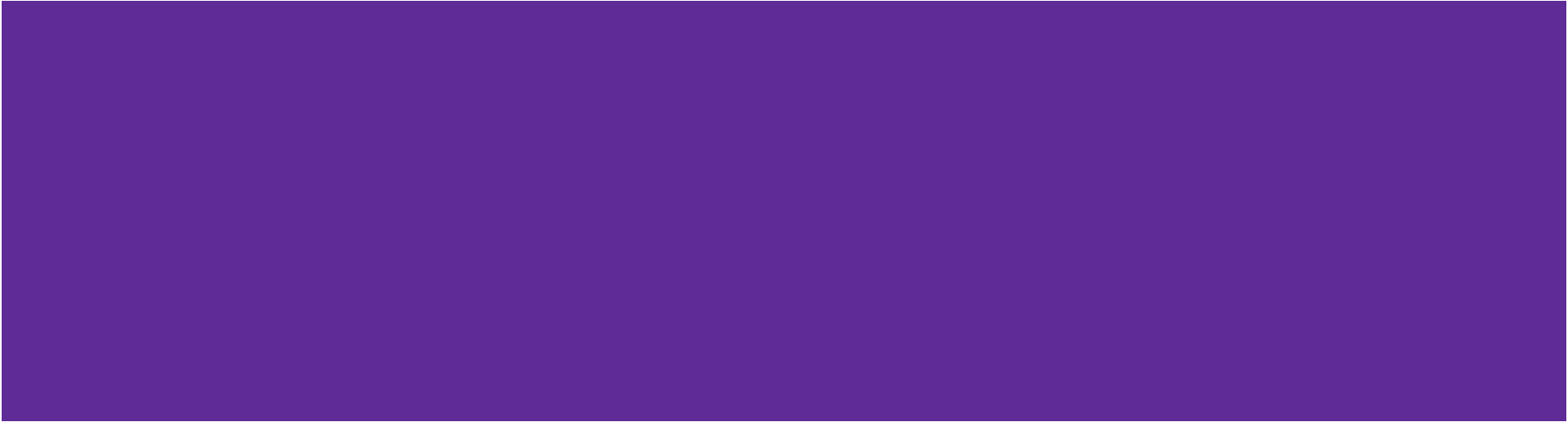
# In what form does energy from the sun travel to Earth?

- Most of the energy from the sun travels to Earth in the form of visible light and infrared radiation.
- A small amount arrives as ultraviolet radiation.

# What happens to the sun's energy when it reaches Earth?

- Some sunlight is absorbed or reflected by the atmosphere before it can reach the surface.
- The rest passes through the atmosphere to the surface.
- When Earth's surface is heated, it radiates most of the energy back into the atmosphere as infrared radiation.

# Heat Transfer



# How is temperature measured?

- Air temperature is usually measured with a thermometer.

# In what three ways is heat transferred?

- Heat is transferred in three ways
  - Radiation
  - Conduction
  - Convection

# How is heat transferred in the troposphere?

- Radiation, conduction, and convection work together to heat the troposphere.



# Winds



# What causes wind?

- Winds are caused by differences in air pressure.

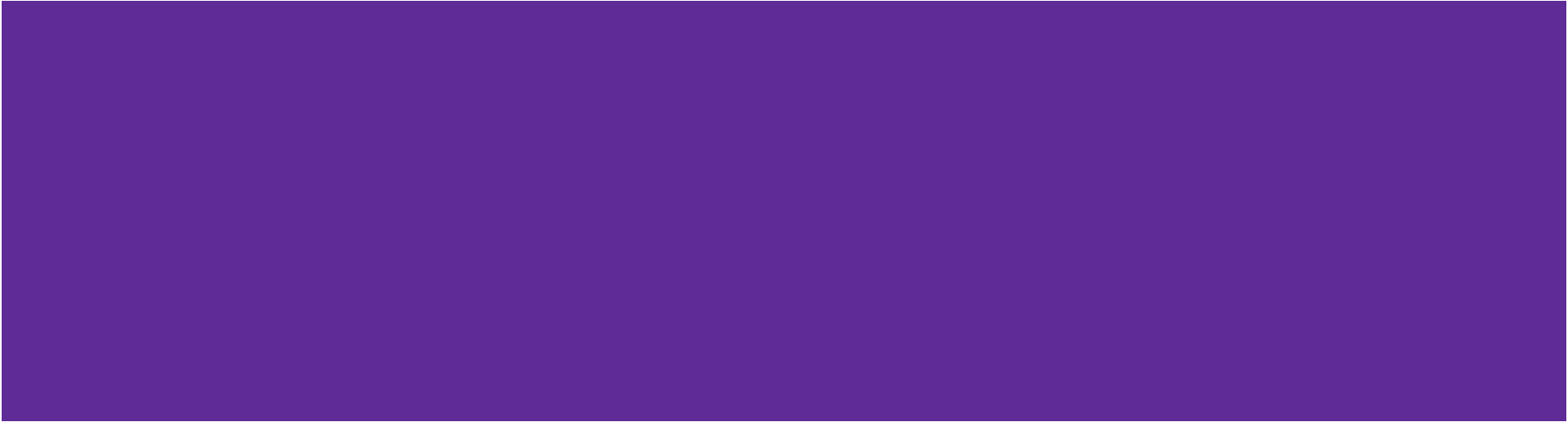
# How do local winds and global winds differ?

- Local winds are caused by the unequal heating of Earth's surface within a small area.
- Global winds are created by the unequal heating of Earth's surface and occur over a large area.

# Where are the major global wind belts located?

- The major global wind belts are the trade winds, the polar easterlies, and the prevailing westerlies.
  - Doldrums
  - Horse Latitudes
  - Trade Winds
  - Prevailing Westerlies
  - Polar Easterlies
  - Jet Streams

# Water in the Atmosphere



# What is humidity and how is it measured?

- Humidity is a measure of the amount of water vapor in the air.
- Relative humidity can be measured with an instrument called a psychrometer.

# How do clouds form?

- Clouds form when water vapor in the air condenses to form liquid water or ice crystals.

# What are the three main types of clouds?

- Scientists classify clouds into three main types based on their shape.
  - Cirrus
  - Cumulus
  - Stratus
- Clouds are further classified by the altitude.



# Precipitation



# What are the common types of precipitation?

- Common types of precipitation include rain, sleet, freezing rain, snow, and hail.

# How is precipitation measured?

- Scientists measure precipitation with various instruments, including rain gauges and measuring sticks.