*Key Vocabulary ES 12 - Weather and Climate*

**Energy Transfer** – When energy goes from one thing to another. Weather is caused by heat energy transferring from Earth’s surface to the air above it.

**Weather** – Day-to-day changes in what the atmosphere is like in a certain area. Temperature, humidity, wind, air pressure, cloud cover, and precipitation are all conditions that can change from day-to-day.

**Climate** – The typical weather for a area over a long period of time.

**Latitude** – A measure of how far north or south of the equator a location is. The further from the equator, the colder the climate

**Elevation** – A measure of how far above sea level a location is. The higher the elevation, the colder the climate.

**Proximity to Bodies of Water** – How close a location is to water such as the ocean or a large lake. Bodies of water tend to make temperatures more even – they keep the air around it from going up or down much from day to day.

**Position Relative to Mountains** – How close a location is to a mountain and what side of the mountain that location is. Mountains cause rain on one side, so we tend to have wet and dry sides of mountains.

**Polar Climatic Zone** – A cold, dry climate close to the North or South Pole. It does not always snow here; it’s just that the snow never melts. Latitudes include 66.50 N up to the North Pole (called the Arctic Circle) and 66.50 S down to the South Pole (called the Antarctic Circle)

**Temperate Climatic Zone** – The middle latitudes of Earth, like Virginia. The tilt of the Earth means that the temperate zone experience the four seasons: summer, fall, winter, and spring. Latitudes are between 66.50 and 23.50 North and South.

**Tropical Climatic Zone** – The latitudes close to the equator. These areas are warm all year and tend to have rain all year or go through wet and dry seasons. Latitudes include 23.50 N down to the equator, and 23.50 S up to the equator

**Uneven Heat Distribution** – Some locations get hotter from the sun than other areas. Earth surface gets hottest at the equator. This causes global winds.

**Global Winds** – Winds that happen across the world and affect the whole world. These winds include the Trade Winds, The Prevailing Westerlies, and the Polar Easterlies.

**Coriolis Effect** – the curve or bend of wind or ocean currents caused by the spin of Earth.

**Convection** – The major type of heat distribution (energy transfer) in the atmosphere, oceans, and the inside of Earth. In the atmosphere convection is when warm air rises, cools, and sinks. Convection causes weather.

**Conduction** – a type of energy transfer where on molecule hits another molecule. This works best between solids, not in the atmosphere.

**Radiation** – a type of energy transfer, such as light from the sun. It can travel through empty space and through our atmosphere.

**Local Winds** – Wind that affect a local area. It includes land breeze, sea breeze, and the jet stream.

**Land Breeze** – When cooler surface wind blows off of the land toward the warmer sea. Wind is named for where it’s coming from.

**Sea Breeze** – When cooler surface wind blows off of the sea toward the warmer land.

**Jet Stream** – An upper atmosphere wind that can move cold polar air in and out of an area. In Virginia’s winter time, below freezing temperatures are usually caused by a “dip” in the jet stream down to our latitude.

**Thermometer** – A tool used to measure temperature.

**Barometric Pressure** – The pressure of the air around us.

**Barometer** – A tool used to measure air pressure.

**Psychrometer** – A tool used to measure humidity and dew point.

**Front** – A line that marks where one body or air pushes against another body of air of a different temperature.

**Isobar** – A line on a weather map where the air pressure is the same all along that line.

**Isotherm** – A line on a weather map where the temperature is the same all along that line.

**Weather Station Model** – A set of symbols that describe the weather at a particular area (at a weather station).

**Air Mass** – A large area of air defined by its air pressure and air temperature.

**Climate Graph** – A graph showing the average temperature and average rainfall for each month at a single location.

**Global Climate Zones** – Areas across the world showing certain types of climates such as desert climates, tropical climates, mountain climates, and so on. Wet and dry climates often depend on the temperature of the oceans next to them.

**Condensation** – Changing state from a gas (water vapor) to a liquid (water droplets).

**Relative Humidity** – A measure of how much water vapor is in the air compared to how much it could hold before condensation must occur. This depends on the air’s temperature. It is written as a percent. Example: 40% relative humidity = the air is holding 40% of the water vapor it could hold at that temperature.

**Dew Point** – The temperature the air would need to be for condensation occurs. It depends on how much water vapor is in the air. Dew Point is a temperature.

**Tornado** – a fast-moving spiral of wind that comes down from the bottom of a cloud to the earth.

**Tropical Cyclone** – A storm powered by warm, tropical oceans. It has very low air pressure and strong winds circling around the low pressure.

**Hurricane** – a tropical cyclone with air moving counterclockwise around the low pressure. Hurricanes have steady winds of 120 km/hr (75 miles/hour). Hurricanes occur on either side of the United States – in the Atlantic Ocean or northeast Pacific Ocean.

**Weather Satellite** – A piece of technology in orbit around the Earth. It can detect all of Earth’s weather from space. Weather satellites can predict bad weather and track storms like hurricanes. This helps save lives.