**End of the Weather Unit Assessment Review:**

**Study Materials: Quizzes. Activities and Post Discussion questions for all 4 Units**

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| **UNIT Name** | **Questions to Answer** | **Notes** |
| **UNIT 1**  **Water Cycle** | **List and describe the phases of the water cycle**  **What is the force that drives the water cycle?**  **Sketch and label the water cycle.** | **Water continually cycles among land, ocean, and atmosphere via transpiration, evaporation, condensation and crystallization, and precipitation, as well as downhill flows on land.**  Global movements of water and its changes in form are propelled **by sunlight and gravity.**  i. Energy transfer from the sun warms water on Earth, which can evaporate into the atmosphere.  ii. Water vapor in the atmosphere forms clouds, which can cool and condense to produce precipitation that falls to the surface of Earth.  iii. Gravity causes water on land to move downhill (e.g., rivers and glaciers) and much of it eventually flows into oceans.  iv. Some liquid and solid water remains on land in the form of bodies of water and ice sheets.  v. Some water remains in the tissues of plants and other living organisms, and this water is released when the tissues decompose.  i. **Energy from the sun drives the movement of water from the Earth (e.g., oceans, landforms, plants) into the atmosphere through transpiration and evaporation.**  ii. Water vapor in the atmosphere can cool and condense to form rain or crystallize to form snow or ice, which returns to Earth when pulled down by gravity.  iii. Some rain falls back into the ocean, and some rain falls on land. Water that falls on land can:  1. Be pulled down by gravity to form surface waters such as rivers, which join together and generally flow back into the ocean.  2. Evaporate back into the atmosphere.  3. Be taken up by plants, which release it through transpiration and also eventually through decomposition.  4. Be taken up by animals, which release it through respiration and also eventually through decomposition.  5. Freeze (crystallize) and/or collect in frozen form, in some cases forming glaciers or ice sheets.  6. Be stored on land in bodies of water or below ground in aquifers. |
| **UNIT 2**  **Water in the Atmosphere** | How do mountains play a role in the amount of rainfall city will receive? (remember to use leeward and windward in you answer)  How proximity to and the temperature of ocean currents affect the amount of moisture in the atmosphere and the weather in an area? | **The complex patterns of the changes and the movement of water in the atmosphere, determined by winds, landforms, and ocean temperatures and currents, are major determinants of local weather patterns.**  Motion and complex interactions of air masses result in changes in weather conditions [note: expectations of students regarding mechanisms are limited to relationships between patterns of activity of air masses and changes in weather].  i. Patterns in weather conditions in a specific area (e.g., temperature, air pressure, humidity, wind speed) over time.  ii. The relationship between the distribution and movement of air masses and landforms, ocean temperatures, and currents.  iii. The relationship between observed, large-scale weather patterns and the location or movement of air masses, including patterns that develop between air masses (e.g., cold fronts may be characterized by thunderstorms). between patterns of activity of air masses and changes in weather conditions. |
| **UNIT 3**  **Predicting Weather** | The meteorologist is predicting cooler weather tomorrow. What must be happening to support that prediction? | Atmospheric movement or wind is the result of differences in air pressure.  Air moves from areas of high pressure to areas of low pressure. This movement of air masses caused by differences in air pressure (or density) leads to the formation of fronts.  Fronts occur at the boundary between high and low pressure air masses.  As fronts move into an area, they change the weather conditions.  A warm front occurs at the boundary between a mass of warm, moist air and cold air, where the warm air mass is overtaking the cold air mass. Since the warm air is less dense than the air it is replacing, it gently gets pushed up over the colder air mass.  Warm fronts have wide areas of cloud cover along the front and gentle precipitation.  A cold front occurs when a cold, dry air mass overtakes a warm air mass. This cold air mass is denser than the warm air mass already in the location  After the cold front passes, the area experiences colder temperatures. |
| **UNIT 4**  **Ocean’s Influence on Weather and Climate** | Why is it hot at the equator but cold at the poles?  Is what happens different for sunlight that strikes water than for sunlight that strikes land? | **The unequal heating and rotation of Earth cause patterns of atmospheric and oceanic circulation that determine regional climates.**  Oceans play a key role in supplying energy and moisture to the atmosphere, they also influence the formation of weather systems, such as thunderstorms, blizzards, and hurricanes.   In the Pacific Ocean, winds that typically blow from east to west along the equator are strong and push the warm surface water into a bulge that allows the cooler deeper water to circulate to the ocean surface.  **During an El Niño, the winds are weaker and the cooler water does not reach the surface. The effect of El Niño is higher surface temperatures along the equator in the Pacific Ocean.** |