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| **Reading** | **Comprehension Questions** |
| **Increasing Temperatures**THE GLOBAL AVERAGE TEMPERATURE IS projected to rise between 2.5 and 10.4oF between 1990-2100. Temperatures will not rise equally everywhere, however. The centers of continents will warm more rapidly than land near the oceans. Landmasses in higher latitudes (polar regions) are also predicted to warm more than in lower latitudes (tropics). For example, the Arctic is projected to warm an additional 7.2-12.6oF, while tropical areas are projected to warm much less.Consequences of higher temperatures may include the following: * more heat-related deaths, especially in urban areas and among poor people
* fewer cold-related deaths in cooler climates
* decreased use of energy for heat (in cooler climates) and increased use of energy for air conditioning
* melting glaciers and permafrost (permanently frozen ground)
* later frosts, earlier spring plantings, longer growing seasons in cooler climates
* growing season & greater heat damage to crops in warmer, drier climates
* changes in ecosystems due to poleward shift of plant and animal species
* increased risk of drought and forest wildfires
 | 1) Where will the greatest temperature increases occur?2) Summarize the main impact that climate change will have on climate and crops: |
| **Changes in Precipitation**WARMER TEMPERATURES are expected to lead to changes in the water cycle, and average global precipitation is expected to increase. However, it is difficult to predict how much the amount of precipitation will change in any given area. Certain regions will get more precipitation and others less. In general, areas in higher latitudes (closer to the poles) and closer to oceans may get more precipitation, while areas in lower latitudes (closer to the equator) and farther inland may get less. Areas in which there are already water shortages may have even less available water. While the frequency of precipitation may not increase, the intensity of precipitation (or amount of precipitation per event) is expected to increase. As a result, precipitation in many areas may come in extreme events, causing flooding and erosion.Consequences of changes in precipitation may include* Increased stress on flood insurance and government disaster relief systems
* increased damage to plants and crops
* increased risk of forest fires
* recharged floodplain aquifers (natural underground water storage areas)
 | 3) What areas will begin to experience more precipitation?4) Kenya experienced a severe drought this year. How will countries like Kenya, which are experiencing water shortages, be affected by climate change?5) What could result in areas that begin to experience increased rains? |
| **Warmer oceans**GLOBAL OCEAN HEAT CONTENT is expected to continue to increase. Most of the increase will happen near the surface of the ocean.The temperature differences between the oceans, the atmosphere, and land creates winds and atmospheric circulation patterns such as the jet stream. Because oceans do not warm up as quickly as air and land (due to the capacity of water to absorb heat), the difference in temperature between sea and land is expected to increase, causing a higher likelihood of strong winds, storms, and unpredictable weather events. Hurricanes get their energy from energy stored in the ocean in the form of heat. As more energy in the form of heat accumulates in the oceans, hurricanes can get more intense. | 6) What effects will climate change have on our weather patterns?7) What effect will it have specifically on hurricanes? |
| **Rising sea levels**SEA LEVEL WILL CONTINUE to rise as a result of global warming. Part of this rise is due to thermal expansion of the oceans (as water gets warmer, it becomes less dense and takes up more space), and part is due to melting glaciers and icecaps. Scientists have so far been unable to predict precisely how much and how quickly the oceans will rise because there are so many variables, including how much glaciers will melt, how much sea water will expand, and how ocean circulation patterns will change. Projections for sea level rise by the year 2100 range from 4 inches (10 centimeters) to as high as several yards/meters (if ice sheets begin to disintegrate). Rising sea levels will make low-lying coastal areas, deltas, and small islands at risk for flooding and erosion. Some very low-lying islands and other areas may need to be evacuated. | 8) REVIEW: How does density change with an increase in temperature?9) What two factors are contributing to rising sea levels?10) What are some possible effects of rising sea levels on coastal cities like New Orleans? |

**\*\*\* Research real current events for each 4 effect listed above. Write a paragraph for each. Include description of the incident, any negative effect it has on human life and economy… etc. State any possible solution to the problem (what can be done about it?)**